AR TARGET SHEET

The following document was too large to scan as one unit, therefore it has been broken down into sections.

DOCUMENT # DOE/RL 89-03, Rev 3

EDMC # 0047269

SECTION 2 OF 2

ENGINEERING CHANGE NOTICE

Page 1 of 5

1. ECN 613355

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. Date
Supplemental [] Direct Revision [] Change ECN [X] Temporary [] Standby [] Supersedure [] Cancel/Void []	KR Busching, 87250, T4-03, 373-2106	15 Dec, 94
	5. Project Title/No./Work Order No.: 616 Valve labeling	6. Bldg./Sys./Fac. No.: 616
		7. Approval Designator: NA
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.): See block 12 ~~ECN 608525~~ WB 01/05/94	9. Related ECN No(s.): 608525 605641
		10. Related PO No.: NA

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[X] Yes (fill out Blk. 11b) [] No (NA Blks. 11b, 11c, 11d)	2X-94-253	Cog. Engineer Signature & Date	NA Cog. Engineer Signature & Date

12. Description of Change

Replace Page 8 of ECN 608525 with pages 3 & 4 of this ECN.
Replace Page 7 of ECN 608525 with page 5 of this ECN

H-6-1559 sh. 1 Rev. 4

H-6-1559 sh. 3 Rev. 1

13a. Justification (mark one)							
As-Found	[]	Criteria Change	[X]	Design Improvement	[]	Environmental	[]
		Facilitate Const.	[]	Const. Error/Omission	[]	Design Error/Omission	[]

13b. Justification Details

Labeling criteria has changed.

14. Distribution (include name, MSIN, and no. of copies)

KR Busching, SA Griffin: T4-03, 1ea
GS Turner, T4-06, 1: Sta 6, T2-03; 20, T4-00

Sta. 3, 4, 20

RELEASE STAMP

OFFICIAL RELEASE
BY WHC
DATE JAN 05 1995
55 Sta. 5

7900-013-2 (06/94) GEF095

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1) 613355

15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[X] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $NA	Savings	[] $NA	Delay	[] NA

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]	NONE	[X]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
N/A		

20. Approvals

OPERATIONS AND ENGINEERING	Signature	Date
Cog. Eng. KR Busching	KR Busching	4 Jan '95
Cog. Mgr. DB Powell	DB Powell 1/4/95	1/4/95
QA		
Safety		
Environ.		
Other Independent Review K.M. McDonald	K.M. McDonald	01/05/95

ARCHITECT-ENGINEER	Signature	Date
PE		
QA		
Safety		
Design		
Environ.		
Other		

DEPARTMENT OF ENERGY

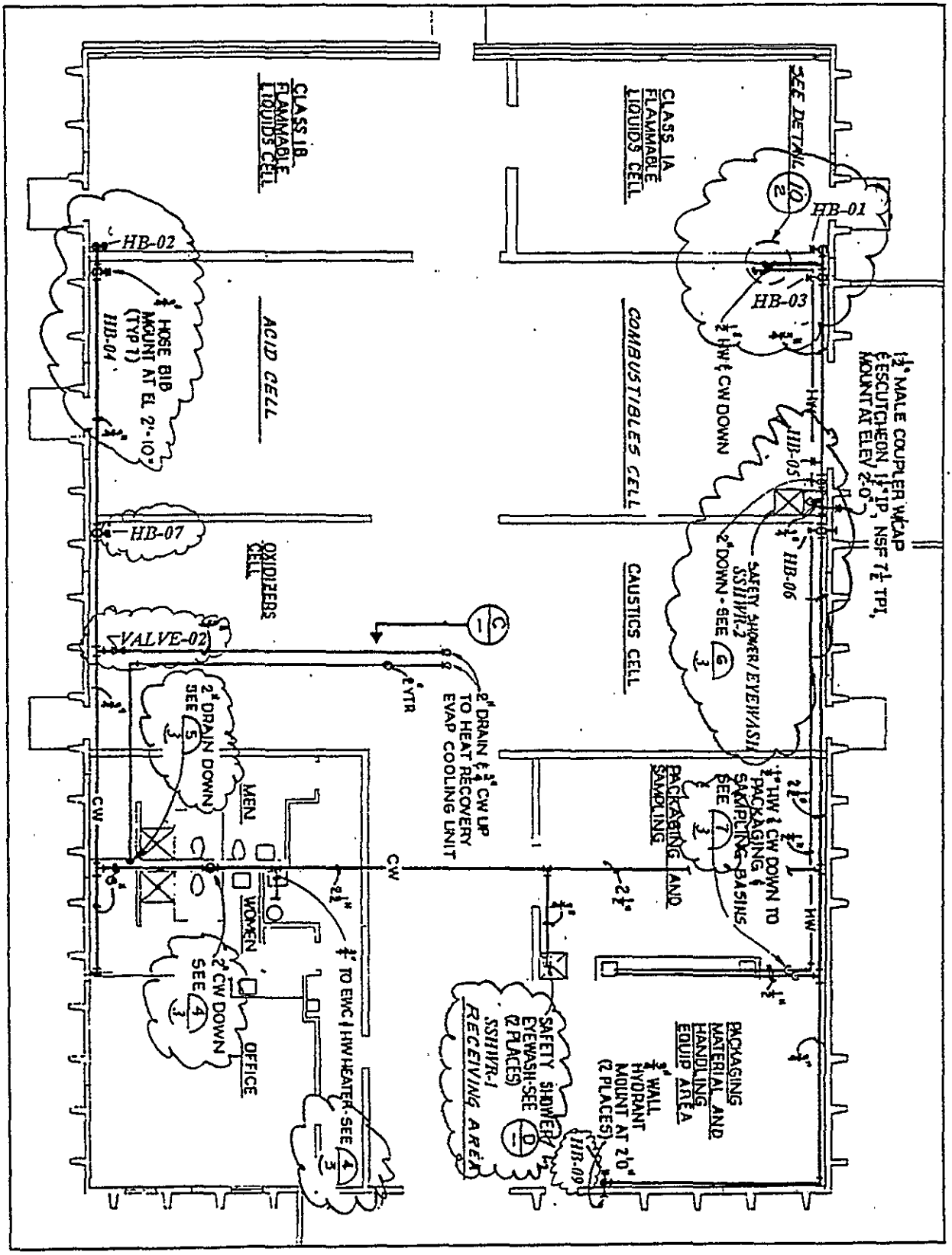
Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

DRAWING ITEM	COMPONENT NUMBER / LABEL	ITEM DESCRIPTION
VALVE-01	SW MAIN ISOLATION 616-WATER-SW-VALVE-01	3" GATE VALVE
VALVE-02	SW HVAC ISOLATION 616-WATER-SW-VALVE-02	3/4" GATE VALVE
VALVE-03	HVAC TEMP CONTROL VALVE 616-WATER-SW-VALVE-03	3/4" TEMPERATURE CONTROL VALVE
VALVE-04	HVAC TEMP CONTROL VALVE 616-WATER-SW-VALVE-04	3/4" TEMPERATURE CONTROL VALVE
VALVE-05	SW RESTROOM ISOLATION 616-WATER-SW-VALVE-05	2" GATE VALVE
VALVE-06	HOT WATER HEATER ISOLATION 616-WATER-SW-VALVE-06	3/4" GATE VALVE
VALVE-07	HOT WATER HEATER ISOLATION 616-WATER-SW-VALVE-07	1/2" GATE VALVE
VALVE-08	FORMER BACKFLOW PREVENTER ISOLATION 616-WATER-SW-VALVE-08	2" GATE VALVE
PRV-1	PRESSURE RELIEF VALVE 616-WATER-SW-PRV-1	PRESSURE RELIEF VALVE
PRV-2	PRESSURE RELIEF VALVE 616-WATER-SW-PRV-2	PRESSURE RELIEF VALVE
HTR-1	HOT WATER HEATER 50 GAL 616-WATER-SW-HTR-1	50 GALLON HOT WATER HEATER
HTR-2	HOT WATER HEATER 10 GAL 616-WATER-SW-HTR-2	10 GALLON HOT WATER HEATER
HB-01	HOSE BIB 616-WATER-SW-HB-01	3/4" HOSE BIB
HB-02	HOSE BIB 616-WATER-SW-HB-02	3/4" HOSE BIB
HB-03	HOSE BIB 616-WATER-SW-HB-03	3/4" HOSE BIB
HB-04	HOSE BIB 616-WATER-SW-HB-04	3/4" HOSE BIB
HB-05	HOSE BIB 616-WATER-SW-HB-05	3/4" HOSE BIB
HB-06	HOSE BIB 616-WATER-SW-HB-06	3/4" HOSE BIB

HB-07	HOSE BIB 616-WATER-SW-HB-07	3/4" HOSE BIB
HB-08	HOSE BIB 616-WATER-SW-HB-08	3/4" HOSE BIB
HB-09	HOSE BIB 616-WATER-SW-HB-09	3/4" HOSE BIB
SSHWR-1	SAFETY SHOWER/EYE WASH 616-WATER-SW-SSHWR-1	SAFETY SHOWER/EYEWASH STATION
SSHWR-2	SAFETY SHOWER/EYE WASH 616-WATER-SW-SSHWR-2	SAFETY SHOWER/EYEWASH STATION

FROM H-6-1559 SHEET 1



ESSENTIAL
ENGINEERING CHANGE NOTICE

1. ECN No 623622

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental [X] Direct Revision [ ] Change ECN [ ] Temporary [ ] Standby [ ] Supersedure [ ] Cancel/Void [ ]	LJ Gaschott, 87250, T4-03, 373-4367	[ ] Yes [X] No	21 August, 1995
	5. Project Title/No./Work Order No.	6. Bldg./Sys./Fac. No.	7. Approval Designator
	616 Labeling program	616	N/A
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.)	9. Related ECN No(s).	10. Related PO No.
	H-6-1559, SH 1, REV 5 H-6-1559, SH 2, REV 2	N/A	N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[ ] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

Label all supply and return air registers, test ports and fans as shown on pages 3, 4 and 5 of this ECN.

Label Fire Dampers (FDP-1 through FDP-11) as shown on page 3 of this ECN.

13a. Justification (mark one)

Criteria Change	[X]	Design Improvement	[ ]	Environmental	[ ]	Facility Deactivation	[ ]
As-Found	[ ]	Facilitate Const	[ ]	Const. Error/Omission	[ ]	Design Error/Omission	[ ]

13b. Justification Details

This ECN is to facilitate labeling of the HVAC units at the 616 facility.

14. Distribution (include name, MSIN, and no. of copies)

LJ Gaschott, File, T4-03
KR Busching, T4-03
NP Emerson, T4-03
PJ Crane, T4-04
JT Schorzman, T4-04
Rel. Sta. 3, 4, 6, 20, 5

RELEASE STAMP

OFFICIAL RELEASE BY WHC 55

DATE OCT 23 1995

Sta 5

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1) 623622

15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

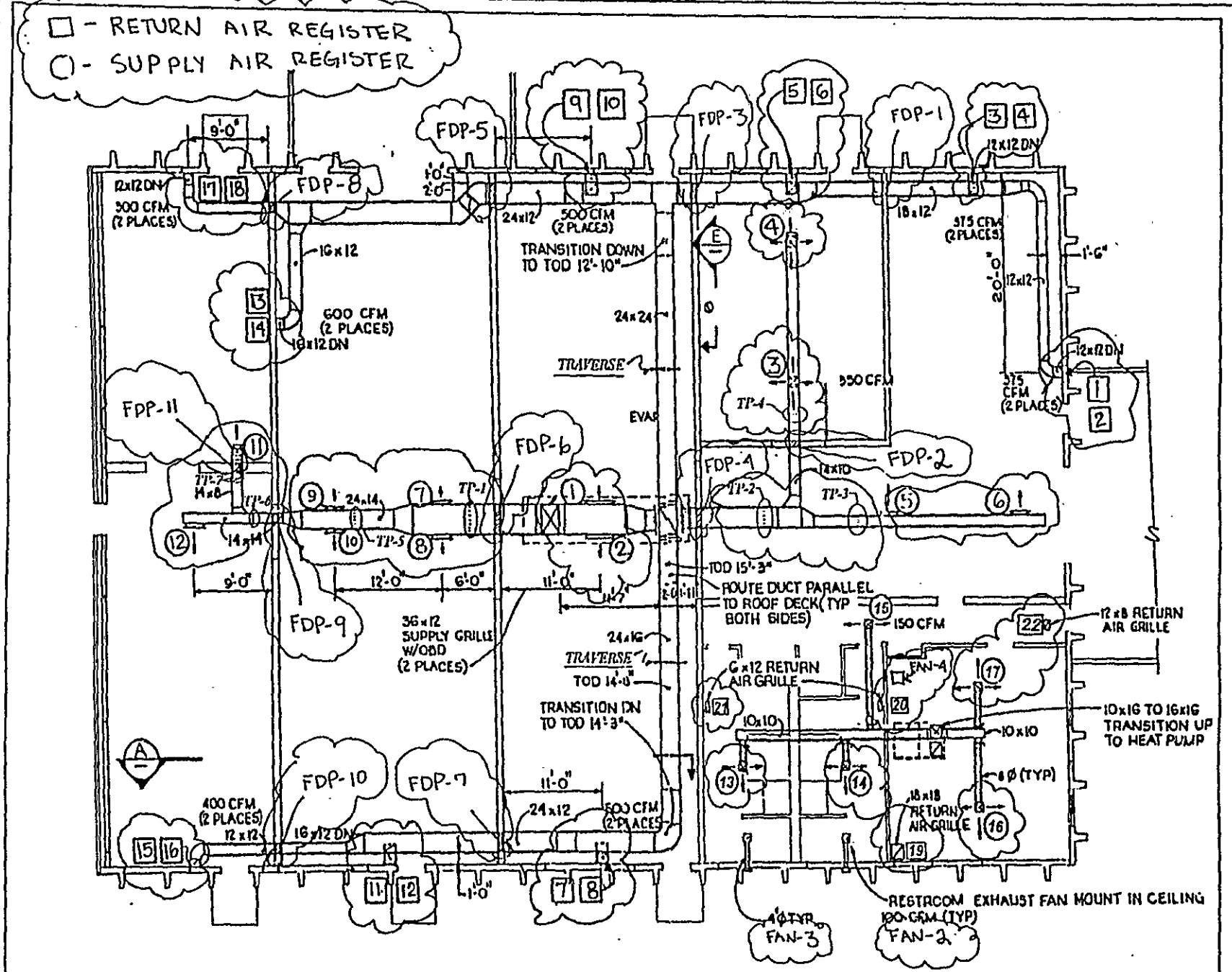
SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[X]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]	NONE	[ ]

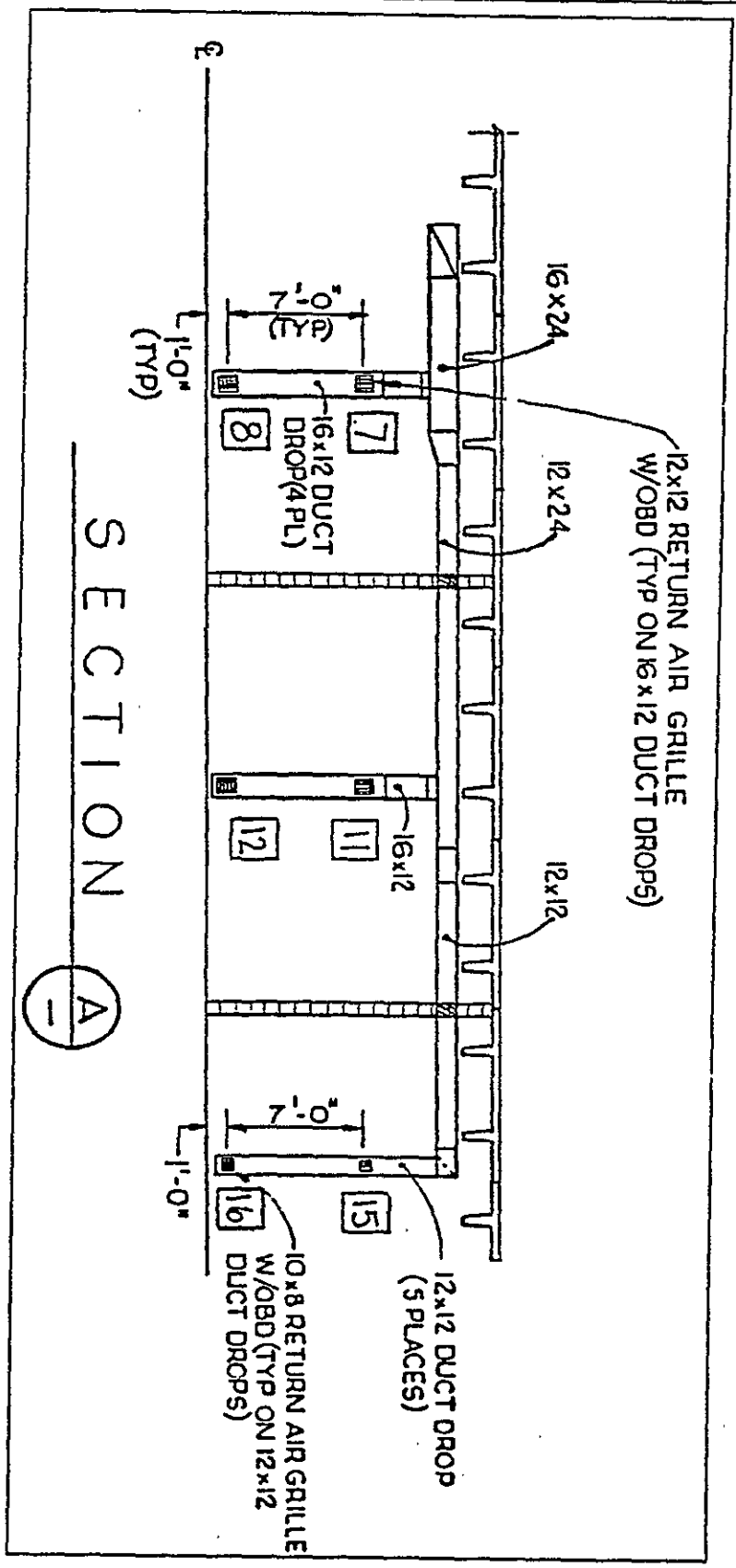
19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

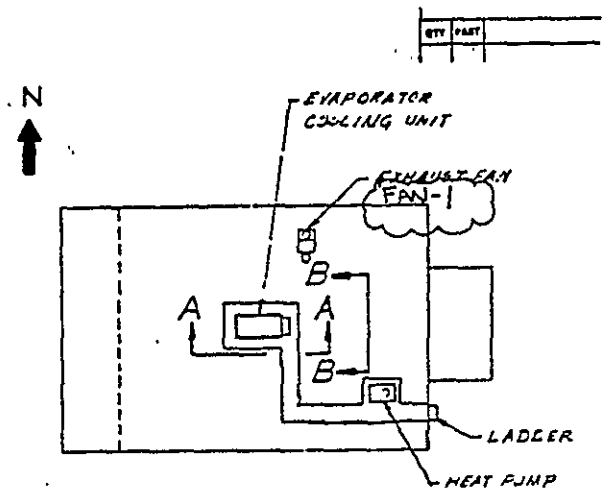
Document Number/Revision	Document Number/Revision	Document Number Revision
WHC-SD-WM-EL-002, Rev 1		

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog. Eng. LJ Gaschott	10/17/95	PE	
Cog. Mgr. DB Powell	10/17/95	QA	
QA		Safety	
Safety		Design	
Environ.		Environ.	
Other ~~Indep. Review~~	10/17/95	Other	
		DEPARTMENT OF ENERGY	
		Signature or a Control Number that tracks the Approval Signature	
		ADDITIONAL	


□ - RETURN AIR REGISTER
○ - SUPPLY AIR REGISTER
FDP-1
FDP-2
FDP-3
FDP-4
FDP-5
FDP-6
FDP-7
FDP-8
FDP-9
FDP-10
FDP-11
12x12 DN
300 CFM (2 PLACES)
16x12
600 CFM (2 PLACES)
16x12 DN
24x12
500 CFM (2 PLACES)
TRANSITION DOWN TO TOD 12'-10"
24x24
TRAVERSE
EVAP
TP-1
TP-2
TP-3
TP-4
TP-5
TP-6
TP-7
550 CFM
375 CFM (2 PLACES)
18x12
14x10
14x8
14x14
24x14
TOD 15'-3"
ROUTE DUCT PARALLEL TO ROOF DECK (TYP BOTH SIDES)
36x12 SUPPLY GRILLE W/ODD (2 PLACES)
150 CFM
12x8 RETURN AIR GRILLE
24x16
TOD 14'-0"
6x12 RETURN AIR GRILLE
TRANSITION DN TO TOD 14'-3"
10x16 TO 16x16 TRANSITION UP TO HEAT PUMP
10x10
8Ø (TYP)
18x18 RETURN AIR GRILLE
400 CFM (2 PLACES)
RESTROOM EXHAUST FAN MOUNT IN CEILING
100 CFM (TYP)
FAN-2
FAN-3
FAN-4
9'-0"
12'-0"
6'-0"
11'-0"
2'-0"
1'-0"
1'-6"
20'-0"


SECTION A
16x24
12x12 RETURN AIR GRILLE W/OBD (TYP ON 16x12 DUCT DROPS)
12x24
12x12
16x12
16x12 DUCT DROP(4 PL)
7'-0" (TYP)
1'-0" (TYP)
7
8
11
12
15
16
12x12 DUCT DROP (5 PLACES)
10x8 RETURN AIR GRILLE W/OBD(TYP ON 12x12 DUCT DROPS)



ROOF PLAN 616 BLDG

SCALE: NONE

ENGINEERING CHANGE NOTICE

Page 1 of 5

1. ECN 173588
Proj. ECN

ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. Date
Supplemental ☒ Direct Revision ☐ Change ECN ☐ Temporary ☐ Supersedure ☒ Discovery ☐ Cancel/Void ☐	DOUGLAS B. BODILY, 87233, T3-02, 3-2188	10/22/92

5. Project Title/No./Work Order No.	6. Bldg./Sys./Fac. No.	7. Impact Level
ML&CA BACK FLOW PREVENTER REMOVAL	616	4

8. Document Number Affected (include rev. and sheet no.)	9. Related ECN No(s).	10. Related PO No.
SEE BLOCK 12	173587	N/A

11a. Modification Work	11b. Work Package Doc. No.	11c. Complete Installation Work	11d. Complete Restoration (Temp. ECN only)
☒ Yes (fill out Blk. 11b) ☐ No (NA Blks. 11b, 11c, 11d)	ZX-92-0084	Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

ECN 173588 SUPERSEDES ECN 173587 IN ITS ENTIRETY ON ~~E~~ US H-6-1559 SHT. 1, REV 3.

1) REVISE DETAIL 6 "BACKFLOW PREVENTER ISOMETRIC" ON DRAWING NUMBER H-6-1559 REV. 0, SHT. 3 PER ATTACHED PAGE 3.

2) REVISE DRAWING H-6-1559 REV. 3 SHT. 1 PER ATTACHED PAGES 4 & 5.

FILE COPY

13a. Justification (mark one)	13b. Justification Details
Criteria Change ☒ Design Improvement ☐ Environmental ☐ As-Found ☐ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐	DETAIL 6 IS LOCATED ON SHT. 3 OF DRAWING H-6-1559 AND NEEDS TO BE REVISED TO REFLECT BACKFLOW PREVENTER REMOVAL.

14. Distribution (include name, MSIN, and no. of copies)

A. B. BODILY	T3-02	1
N. L. WESTON	T3-02	(FILE COPY) 1
G. S. TURNER	T3-29	1

RELEASE STAMP

OFFICIAL RELEASE BY WHC
DATE OCT 26 1992
Station 6

A-7900-013 (11/88)

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1) 173588

15. Design Verification Required	16. Cost Impact		17. Schedule Impact (days)
	ENGINEERING	CONSTRUCTION	
☐ Yes	Additional ☐ $ N/A	Additional ☐ $ N/A	Improvement ☐
☒ No	Savings ☐ $	Savings ☐ $	Delay ☐

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☐	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceptual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec.	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const. Spec.	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec.	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐	_____	☐
Environmental Report	☐	Inspection Plan	☐	_____	☐
Environmental Permit	☐ N/A	Inventory Adjustment Request	☐ N/A	_____	☐ N/A

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

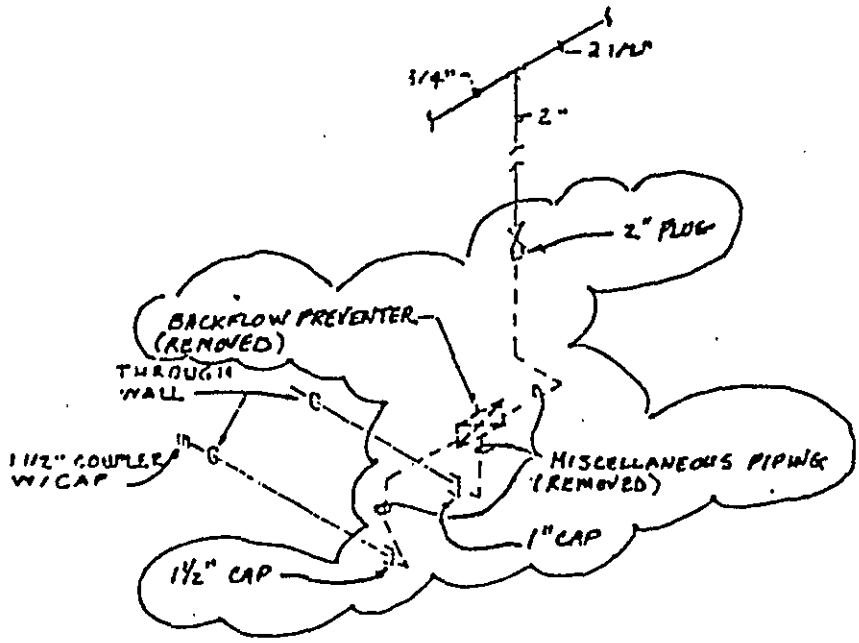
Document Number/Revision	Document Number/Revision	Document Number/Revision
N/A		

20. Approvals

	Signature	Date		Signature	Date
OPERATIONS AND ENGINEERING			ARCHITECT-ENGINEER		
Cog./Project Engineer	D.B. Stoltz	10/22/92	PE		
Cog./Project Engr. Mgr.	[signature]	10/22/92	QA		
QA			Safety		
Safety			Design		
Security			Other		
Proj.Prog./Dept. Mgr.					
Def. React. Div.					
Chem. Proc. Div.					
Def. Wst. Mgmt. Div.			DEPARTMENT OF ENERGY		
Adv. React. Dev. Div.					
Proj. Dept.					
Environ. Div.			ADDITIONAL		
IRM Dept.					
Facility Rep. (Ops)					
Other					
WATER PURVEYOR: [signature]	#2839	10/26/92			

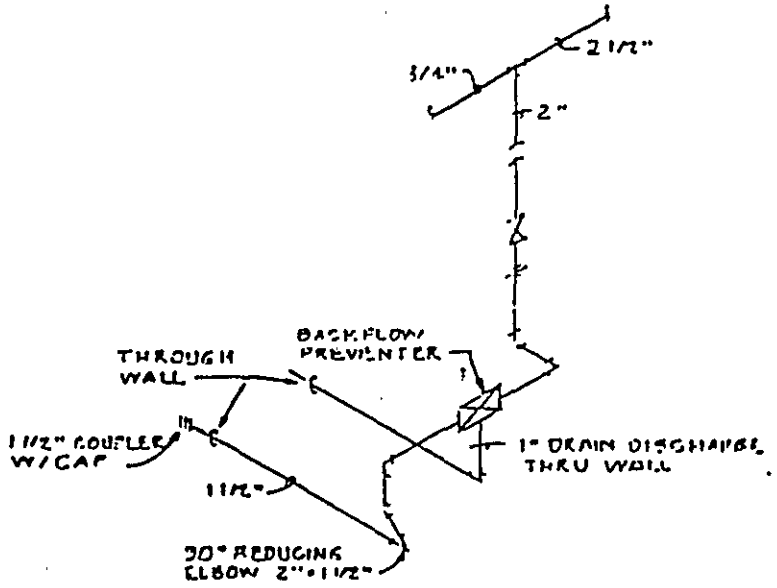
1)

IS:



BACKFLOW PREVENTER ISOMETRIC (a)
H-6-1559

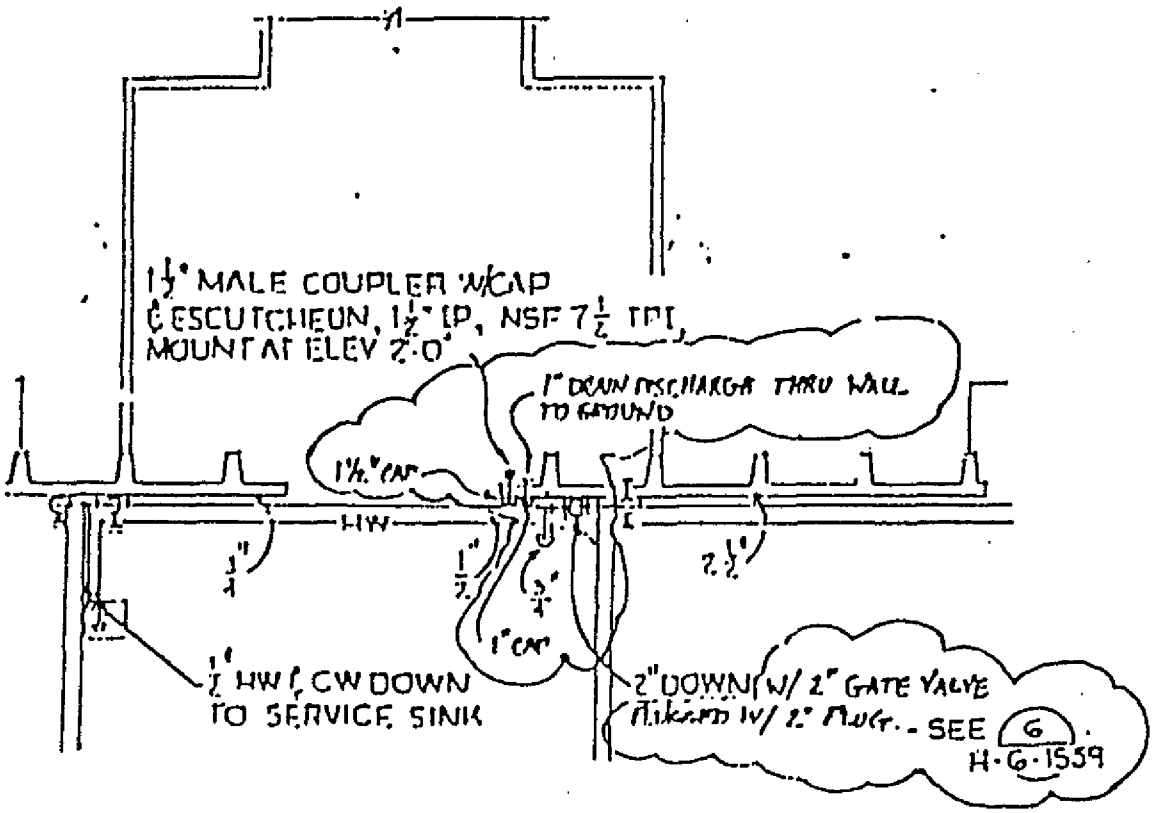
WAS:



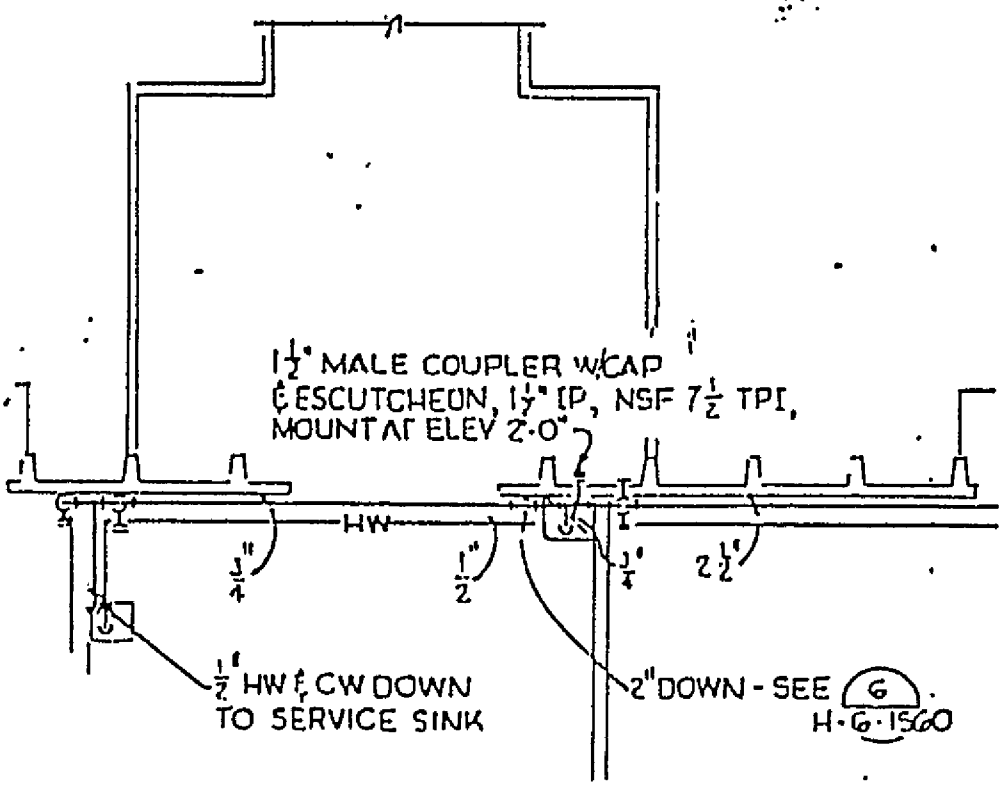
BACKFLOW PREVENTER ISOMETRIC (6)
H-6-1559

2)

IS:


1½" MALE COUPLER W/CAP
& ESCUTCHEON, 1½" IP, NSF 7½ TPI,
MOUNT AT ELEV 2'-0"
1" DRAIN DISCHARGE THRU WALL
TO GROUND
1½" CW
HW
CW
1" CW
½" HW & CW DOWN
TO SERVICE SINK
2" DOWN W/ 2" GATE VALVE
& 2" PLUG - SEE (6)
H-6-1559

WAS:


1½" MALE COUPLER W/CAP
& ESCUTCHEON, 1½" IP, NSF 7½ TPI,
MOUNT AT ELEV 2'-0"
HW
¾"
1"
¾"
2½"
½" HW & CW DOWN
TO SERVICE SINK
2" DOWN - SEE 6
H-6-1560

ESSENTIAL
ENGINEERING CHANGE NOTICE

Page 1 of 3

1. ECN No 616253

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental [X] Direct Revision [] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	R.D. HODGSON, 87250, T4-03, 373-5770	[] Yes [X] No	Dec 27, 1995
	5. Project Title/No./Work Order No. REPLACE PANEL A BREAKER 22 WITH GFCI BREAKER/A4V10	6. Bldg./Sys./Fac. No. 616, ELECTRICAL PANEL A	7. Approval Designator NA
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) H-6-1560, SHT 1, REV 4	9. Related ECN No(s). NA	10. Related PO No. NA

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[X] Yes (fill out Blk. 11b) [] No (NA Blks. 11b, 11c, 11d)	2X-95-337-W	MAR 07 1995 55 R.D. Hodgson 3/6/96 Cog. Engineer Signature & Date	NA Cog. Engineer Signature & Date

12. Description of Change

ADD A GFCI SYMBOL NEXT TO PANEL A, BREAKER 22 ON DRAWING H-6-1560, SHT 1, REV 4 TO INDICATE THAT THIS CIRCUIT IS PROTECTED BY A GFCI BREAKER.

13a. Justification (mark one)

Criteria Change	[]	Design Improvement	[X]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

13b. Justification Details

Panel A, Breaker 22 feeds an outdoor receptacle that is not GFCI protected. This modification will provide GFCI protection to all of the receptacles on circuit A-22. Design verification method is by Independent Review.

14. Distribution (include name, MSIN, and no. of copies)

RD HODGSON	T4-03	(1)
SWMFE FILE	T4-03	(1)
JR FERGUSON	T4-06	(1)
NP EMERSON	T4-03	(1)
PJ CRANE	T4-03	(1)
JT SCHORZMAN	T4-04	(1)
~~CDWS #4~~	R1-29	

STA 3, 4, 5, 6, 15

RELEASE STAMP

JAN 04 1996

DATE:

STA: 5

HANFORD RELEASE

ID: 55

A-7900-013-2 (11/94) GEF095

A-7900-013-1

15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[X] Yes	Additional	[] $ N/A	Additional	[] $	Improvement	[]
[] No	Savings	[] $	Savings	[] $	Delay	[] N/A

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[X]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[] N/A	Inventory Adjustment Request	[]		[]NA

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
SWM PREVENTIVE MAINTENANCE PROCEDURE 2X22018	NA	NA

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog. Eng. [signature]	12/27/95	PE	
Cog. Mgr. [signature]	12/28/95	QA	
QA		Safety	
Safety		Design	
Environ.		Environ.	
Other INDEPENDENT REVIEW K.M. McDonald	12/28/95	Other	
		DEPARTMENT OF ENERGY	
		Signature or a Control Number that tracks the Approval Signature	
		ADDITIONAL	

RIAL FA CABLE

ELEVATION (B/—)
SCALE: NONE

EVAC ALARM ELEMENTARY DIAC

PANELBOARD A VOLTS 120/208Y, 3PH, 4W LOCATION CORRIDOR
225 AMP BUSSING ☐ MAIN BRKR ___ AMP ☒ SURFACE MOUNTED ☒ TOP FEED
225 AMP NEUTRAL ☒ MAIN LUGS ONLY ☐ FLUSH MOUNTED ☐ BOT FEED

	CKT	LOAD DESCRIPTION	WATTS	BRKR	BRKR	WATTS	LOAD DESCRIPTION	CKT	
	1	PANEL "B" MAIN BRK	1746 1768 1813	60	60	2500 4700 4700	OFFICE/RESTROOM HEAT PUMP	2	
	7	LIGHTING - OFFICE	1177	20	40	3514 3514 3514	LIFT TRUCK BAT CHGR (FUT)	6	
	9	LIGHTING - CORR, RESTROOMS	957	20					
	11	LIGHTING - MATL HANDLING	1385	20					
	13	LIGHTING - PKG/SAMPLING	1045	20	30	2250 2250	RESTROOM WTR HTR	14	
	15	LIGHTING - OXIDIZERS CELL	680	20					
	17	LIGHTING - CAUSTICS CELL	1045	20	20	1500	PKG/SAMPLING RM WTR HTR	18	⊕
	19	EXTR & EXIT LIGHTING	500	20	20	555	WATER COOLER RCPT	20	
⊖	21	MATL HNDLG RM RCPT	360	20	20	540	L DOCK & MATL HNDLG RCPT	22	
⊖	23	MATL HNDLG RM RCPT	360	20	20	540	OFFICE RCPT	24	
⊖	25	OXIDIZERS CELL RCPT	360	20	20	540	OFFICE RCPT	26	
⊖	27	CAUSTICS CELL RCPT	360	20	20	540	OFFICE & CORRIDOR RCPT	28	
⊖	29	PKG/SAMPLING RM RCPT	540	20	20	300	FIRE ALARM PANEL	30	▲
	31	PKG/SAMPLING RM FAN	828	20	20	1054	EVAC ALARM PANEL	32	*
⊖	33	LUNCH COUNTER RCPT	360	20	20	300	TELEPHONE EQPT RCPT	34	*
⊖	35	RESTROOM RCPT	360	20	20	----	HIGH VAC FLOW LIGHT	36	
	37	FDAS	----	20	20	----	SPARE	38	
	39	SPACE			50	12400	LUNCH ROOM RANGE	40	
	41	SPACE							

TOTAL CONNECTED LOAD PH A = [illegible]
PH B = 22,579
PH C = 22,257
TOTAL = 60,855 W

REMARKS: INSTALL CONDUIT COVER SKIRT, TOP OF PANEL TO CEILING.
* INSTALL HANDLE LOCK-ON DEVICE
▲ PAINT BREAKER HANDLE RED
⊖ GFCI CIRCUIT BREAKER

K CABLE
LUIT.

ADD GFCI (⊕) SYMBOL TO BREAKER 22

IPF #10

ESSENTIAL
ENGINEERING CHANGE NOTICE

Page 1 of 5

1. ECN No 617748

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. Date
Supplemental [X] Direct Revision [] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	RICHARD D. HODGSON/87250/T4-03/373-5770	April 24, 1995
	5. Project Title/No./Work Order No. INSTALL EXHAUST FAN AND CABINET IN 616 BLDG. /A130A	6. Bldg./Sys./Fac. No. 616 Building
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) H-6-1561, sh. 1, rev 5 H-6-1560, sh. 1, rev 4	9. Related ECN No(s). N/A
		7. Impact Level N/A
		10. Related PO No. N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[X] Yes (fill out Blk. 11b) [] No (NA Blks. 11b, 11c, 11d)	2X-94-329	Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

ADD CHANGES SHOWN ON PAGE 3, 4, AND 5 TO DRAWINGS

13a. Justification (mark one)							
Criteria Change	[]	Design Improvement	[X]	Environmental	[]		
As-Found	[]	Facilitate Const.	[]	Const. Error/Omission	[]	Design Error/Omission	[]

13b. Justification Details

Provide a ventilation hood and filter above the cooking surface of the range.

14. Distribution (include name, MSIN, and no. of copies)

SHERI GRIFFIN MSIN, T4-03
JR FERGUSON, MSIN T4-06
DICK HODGSON, MSIN T4-03
CDWS #4, R1-29 CDWS #6 T2-03
DWS #3 S2-05
DWS #20 T4-00
IPF #10 S2-40

RELEASE STAMP

OFFICIAL RELEASE BY WHC 12
DATE MAY 01 1995
Sta #6

15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[X] Yes	Additional	[] $N/A	Additional	[] $	Improvement	[]
[] No	Savings	[] $	Savings	[] $	Delay	[] N/A

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]		[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[] N/A	Inventory Adjustment Request	[] N/A		[] NA

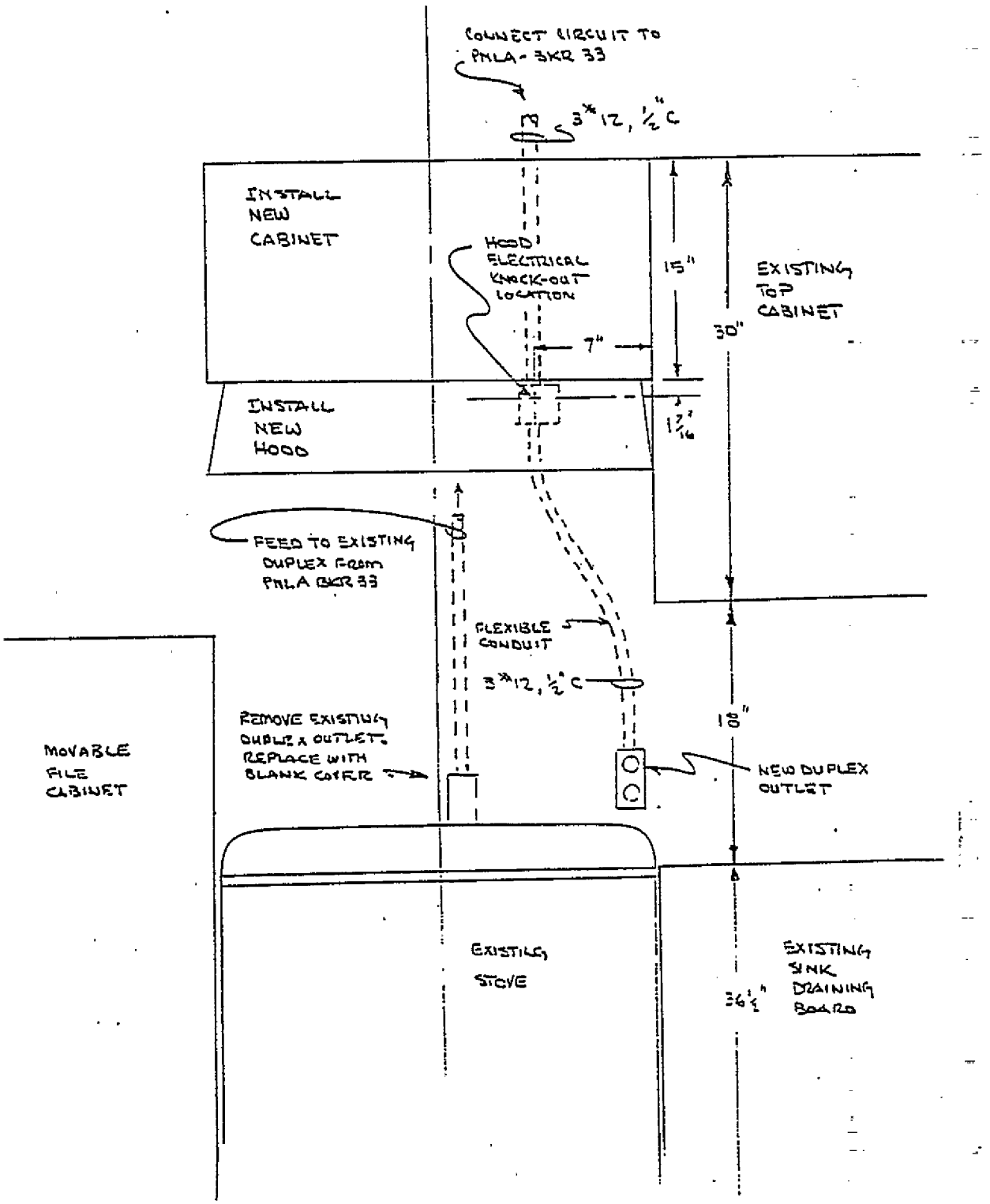
19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

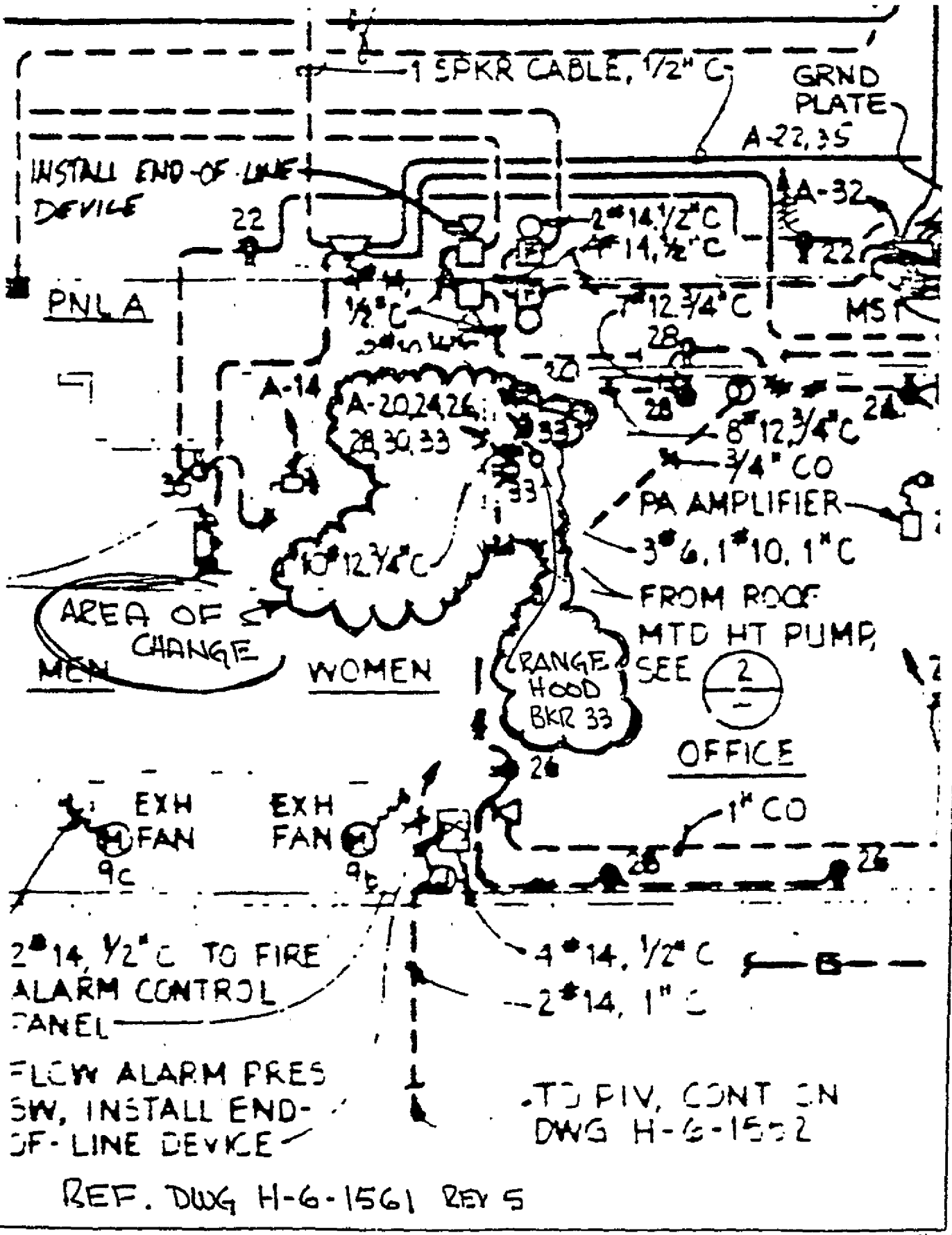
Document Number/Revision	Document Number/Revision	Document Number Revision
N/A		

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog Engineer [signature]	4-24-95	PE	
Cog. Mgr. [signature]	4-27-95	QA	
QA		Safety	
Safety		Design	
Security		Environ.	
Environ.		Other	
Projects/Programs			
Tank Waste Remediation System			
Facilities Operations		DEPARTMENT OF ENERGY	
Restoration & Remediation		Signature or Letter No.	
Operations & Support Services			
IRM		ADDITIONAL	
Other: Independent Verifier K.M. McDonald	4/25/95		

ECN 617748


CONNECT CIRCUIT TO PNLA - BKR 33
3 #12, ½" C
INSTALL NEW CABINET
HOOD ELECTRICAL KNOCK-OUT LOCATION
7"
15"
30"
EXISTING TOP CABINET
INSTALL NEW HOOD
1 7/16"
FEED TO EXISTING DUPLEX FROM PNLA BKR 33
FLEXIBLE CONDUIT
3 #12, ½" C
18"
REMOVE EXISTING DUPLEX OUTLET, REPLACE WITH BLANK COVER
NEW DUPLEX OUTLET
MOVABLE FILE CABINET
EXISTING STOVE
EXISTING SINK DRAINING BOARD
36½"


1 SPKR CABLE, 1/2" C
GRND PLATE A-22,35
INSTALL END-OF-LINE DEVICE
A-32
22
2"14.1/2"C
4"14.1/2"C
PNLA
1/2"C
2"12.3/4"C
MSP
28
20
A-14
A-20,24,26, 28,30,33
33
8"12.3/4"C
3/4" CO
PA AMPLIFIER
3"6, 1"10, 1"C
FROM ROOF MTD HT PUMP, SEE 2
10"12.3/4"C
AREA OF CHANGE
MEN
WOMEN
RANGE HOOD BKR 33
OFFICE
EXH FAN 9c
EXH FAN 9b
1" CO
2"14, 1/2"C TO FIRE ALARM CONTROL PANEL
4"14, 1/2"C
2"14, 1"C
FLOW ALARM PRES SW, INSTALL END-OF-LINE DEVICE
TO PIV, CONT ON DWG H-6-1562
REF. DWG H-6-1561 REV 5

ENGINEERING CHANGE NOTICE CONTINUATION SHEET

ECN 617748

REF: DWG H-6-1560 SH 1 REV 4

PANELBOARD A VOLTS 120/208V, 3PH, 4W LOCATION CORRIDOR

225 AMP BUSSING ☐ MAIN BRKR ___ AMP ☒ SURFACE MOUNTED ☒ TOP FEED

225 AMP NEUTRAL ☒ MAIN LUGS ONLY ☐ FLUSH MOUNTED ☐ BOT FEED

CKT	LOAD DESCRIPTION	WATTS	BRKR	BRKR	WATTS	LOAD DESCRIPTION	CKT
1	PANEL "B" MAIN BRK	1746 1768 1813	60	60	2599 4700 4700	OFFICE / RESTROOM HEAT PUMP	2
7	LIGHTING - OFFICE	1177	20	40	3514 3514 3514	LIFT TRUCK BAT CHGR (FUT)	6
9	LIGHTING - CORR. RESTROOMS	957	20				
11	LIGHTING - MATL HANDLING	1385	20				
13	LIGHTING - PKG/SAMPLING	1045	20	30	2250 2250	RESTROOM WTR HTR	14
15	LIGHTING - OXIDIZERS CELL	680	20				
17	LIGHTING - CAUSTICS CELL	1045	20	20	1500	PKG/SAMPLING RM WTR HTR	18 ⊖
19	EXTR & EXIT LIGHTING	500	20	20	555	WATER COOLER RCPT	20
⊖ 21	MATL HNDLG RM RCPT	360	20	20	540	L DOCK & MATL HNDLG RCPT	22
⊖ 23	MATL HNDLG RM RCPT	360	20	20	540	OFFICE RCPT	24
⊖ 25	OXIDIZERS CELL RCPT	360	20	20	540	OFFICE RCPT	26
⊖ 27	CAUSTICS CELL RCPT	360	20	20	540	OFFICE & CORRIDOR RCPT	28
⊖ 29	PKG/SAMPLING RM RCPT	540	20	20	300	FIRE ALARM PANEL	30 *▲
31	PKG/SAMPLING RM FAN	828	20	20	1054	EVAC ALARM PANEL	32 *
⊖ 33	LUNCH COUNTER RCPT	360	20	20	300	TELEPHONE EQPT RCPT	34 *
⊖ 35	RESTROOM RCPT	360	20	20	----	HIGH VAC FLOW LIGHT	36
37	FDAS	----	20	20	----	SPARE	38
39	SPACE			50	12400	LUNCH ROOM RANGE	40
41	SPACE						

TOTAL CONNECTED LOAD PH A = [illegible] PH B = 22579 PH C = 22257 TOTAL = 60,955 W

REMARKS INSTALL CONDUIT COVER SKIRT, TOP OF PANEL TO CEILING.

* INSTALL HANDLE LOCK-ON DEVICE

▲ PAINT BREAKER HANDLE RED

⊖ GFCI CIRCUIT BREAKER

CHANGE BKR 33 TO

"LUNCH COUNTER RCPT & HOOD

IPF 10

ESSENTIAL
ENGINEERING CHANGE NOTICE

Page 1 of 5

1. ECN 626001

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental [ ] Direct Revision [ ] Change ECN [X] Temporary [ ] Standby [ ] Supersedure [ ] Cancel/Void [ ]	R. D. HODGSON/87250/T4-03/373-5770	[ ] Yes [X] No	Sept. 15, 1995
	5. Project Title/No./Work Order No.	6. Bldg./Sys./Fac. No.	7. Approval Designator
	INSTALL EXHAUST FAN AND CABINET IN 616 BLDG./A130A	616 BUILDING	NA
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) See Block ~~ECN 617748~~ 9g	9. Related ECN No(s). ECN 617748	10. Related PO No. N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[X] Yes (fill out Blk. 11b) [ ] No (NA Blks. 11b, 11c, 11d)	2X-94-329	SEP 27 1995 55 R D Hodgson 9/27/95 Cog. Engineer Signature & Date	Cog. Engineer Signature & Date

12. Description of Change

ADD CHANGES SHOWN ON PAGES 3, 4, AND 5, TO DRAWINGS LISTED IN BLOCK 8

H-6-01560 sh 1, Rev 11. 9-27-95

H-6-01561 sh 1, 9-27-95 Rev 6

13a. Justification (mark one)

Criteria Change	[ ]	Design Improvement	[ ]	Environmental	[ ]	Facility Deactivation	[ ]
As-Found	[ ]	Facilitate Const	[X]	Const. Error/Omission	[ ]	Design Error/Omission	[ ]

13b. Justification Details

1. Elimination of the duplex outlet was made because of the costs associated with the removal, replacement and refinishing of dry-wall and a 4-plex GFCI outlet is available nearby. 2. Connection of the hood to Panel A, circuit 36 instead of Panel A, circuit 33 was permitted because of easier access to existing wire terminations. Design verified by independent review.

14. Distribution (include name, MSIN, and no. of copies)

RD HODGSON	T4-03	(1)
SWMFE FILE	T4-03	(1)
JR FERGUSON	T4-06	(1)
JM NIELSEN	T4-05	(1)
PJ CRANE	T4-03	(1)
RR DURFEE	T4-06	(1)
CDWS #4	R1-29	

RELEASE STAMP

OFFICIAL RELEASE BY WHC 55

DATE SEP 27 1995

3, 4, 5 of 15

A-7900-013-2 (11/94) GEF095

15. Design Verification Required
[X] Yes
[] No

16. Cost Impact

	ENGINEERING		CONSTRUCTION	
Additional	[]	$ N/A	[]	$
Savings	[]	$	[]	$

17. Schedule Impact (days)

Improvement	[]
Delay	[] N/A

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[] N/A	Inventory Adjustment Request	[] N/A		[] NA

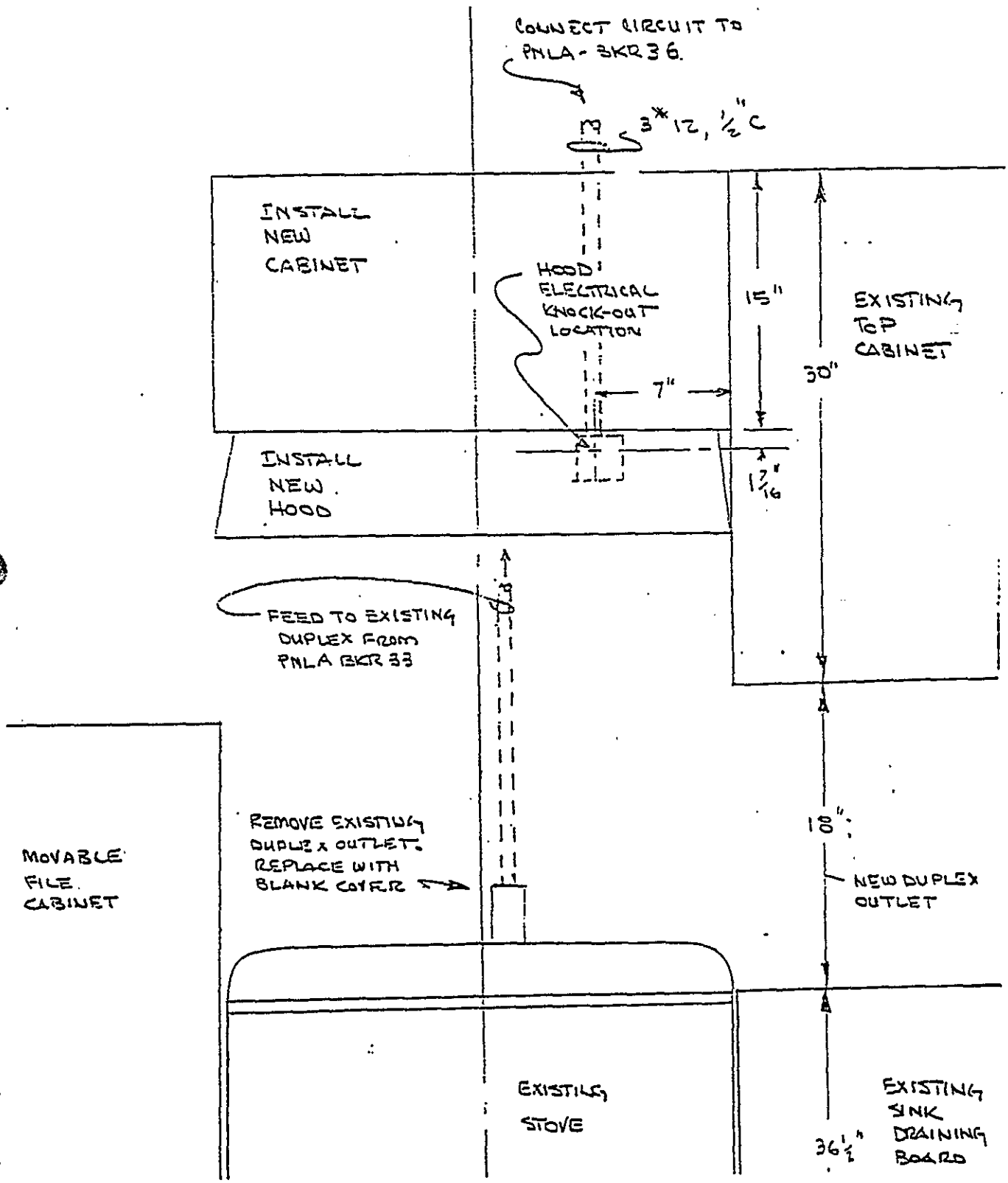
19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
N/A		

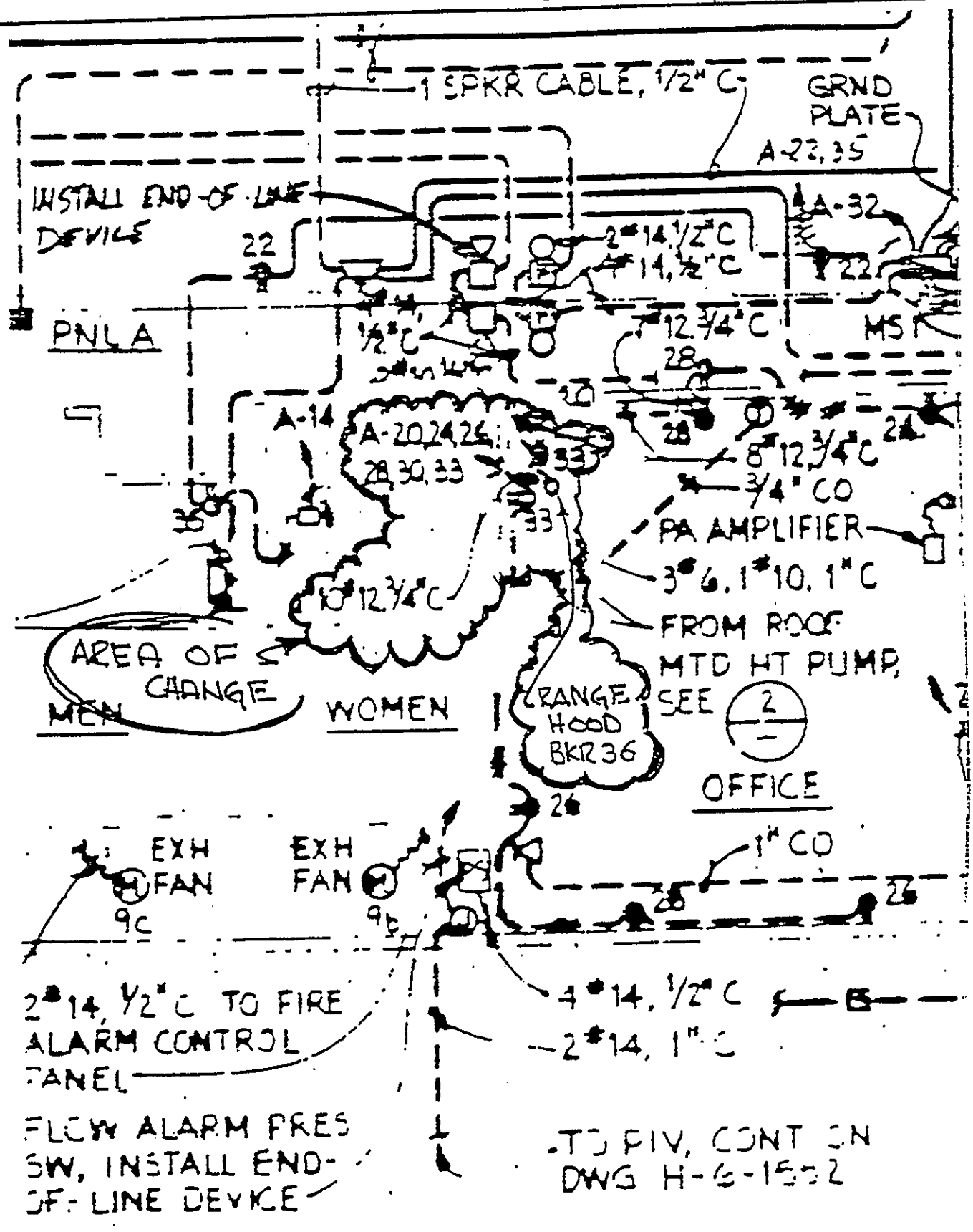
20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog. Eng. [signature]	9-25-95	PE	
Cog. Mgr. [signature]	9/27/95	QA	
QA		Safety	
Safety		Design	
Environ.		Environ.	
Other INDEPENDENT REVIEW K.M. McDonald	9/26/95	Other	
		DEPARTMENT OF ENERGY	
		Signature or a Control Number that tracks the Approval Signature	
		ADDITIONAL	

ECN 626001


CONNECT CIRCUIT TO PNLA - BKR 36.
3 * 12, 1/2" C
INSTALL NEW CABINET
HOOD ELECTRICAL KNOCK-OUT LOCATION
7"
15"
30"
EXISTING TOP CABINET
INSTALL NEW HOOD
1 7/16"
FEED TO EXISTING DUPLEX FROM PNLA BKR 33
MOVABLE FILE CABINET
REMOVE EXISTING DUPLEX OUTLET. REPLACE WITH BLANK COVER
18"
NEW DUPLEX OUTLET
EXISTING STOVE
EXISTING SINK DRAINING BOARD
36 1/2"

ECN 626001



REF. DWG H-6-1561 REV 6

ENGINEERING CHANGE NOTICE CONTINUATION SHEET	ECN
	626001

REF: DWG H-6-1560 SH 1 REV 4

PANELBOARD A VOLTS 120/208V, 3Ph, 4W LOCATION CORRIDOR

225 AMP BUSSING ☐ MAIN BRKR ___ AMP ☒ SURFACE MOUNTED ☒ TOP FEED

225 AMP NEUTRAL ☒ MAIN LUGS ONLY ☐ FLUSH MOUNTED ☐ BOT FEED

	CKT	LOAD DESCRIPTION	WATTS	BRKR	BRKR	WATTS	LOAD DESCRIPTION	CKT	
	1	PANEL "B" FAL BRL	1746 1768 1813	60	60	2500 4700 4700	OFFICE / RESTROOM HEAT PUMP	2	
	7	LIGHTING - OFFICE	1177	20					
	9	LIGHTING - CORR. RESTROOMS	957	20	40	3514 3514 3514	LIFT TRUCK BAT CHGR (FUT)	6	
	11	LIGHTING - MATL HANDLING	1385	20					
	13	LIGHTING - PKG/SAMPLING	1045	20					
	15	LIGHTING - OXIDIZERS CELL	680	20	30	2250 2250	RESTROOM WTR HTR	14	
	17	LIGHTING - CAUSTICS CELL	1045	20	20	1500	PKG/SAMPLING RM WTR HTR	18	⊕
	19	EXTR & EXIT LIGHTING	500	20	20	555	WATER COOLER RCPT	20	
⊖	21	MATL HNDLG RM RCPT	360	20	20	540	L DOCK & MATL HNDLG RCPT	22	
⊖	23	MATL HNDLG RM RCPT	360	20	20	540	OFFICE RCPT	24	
⊖	25	OXIDIZERS CELL RCPT	360	20	20	540	OFFICE RCPT	26	
⊖	27	CAUSTICS CELL RCPT	360	20	20	540	OFFICE & CORRIDOR RCPT	28	
⊖	29	PKG/SAMPLING RM RCPT	540	20	20	300	FIRE ALARM PANEL	30	•▲
	31	PKG/SAMPLING RM FAN	828	20	20	1054	EVAC ALARM PANEL	32	•
⊖	33	LUNCH COUNTER RCPT	360	20	20	300	TELEPHONE EQPT RCPT	34	•
⊖	35	RESTROOM RCPT	360	20	20	—	HIGH VAC FLOW LIGHT	36	
	37	FDAS	—	20	20	—	SPARE	38	
	39	SPACE			50	12400	LUNCH ROOM RANGE	40	
	41	SPACE							

TOTAL CONNECTED LOAD	REMARKS
PH A = [illegible] PH B = 22571 PH C = 22257 TOTAL = 60,455 W	INSTALL CONDUIT COVER SKIRT, TOP OF PANEL TO CEILING. • INSTALL HANDLE LOCK-ON DEVICE ▲ PAINT BREAKER HANDLE RED ⊖ GFCI CIRCUIT BREAKER

CHANGE BKR 36 TO

"HIGH VAC FLOW LT / RANGE HOOD"

FILE COPY

IPF #10

ENGINEERING CHANGE NOTICE

ESSENTIAL

Page 1 of 8

1. ECN 196404

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.				4. Date
Supplemental [X] Direct Revision [] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	JP BAILEY	3C630	S2-40	376-8397	05/10/95
	5. Project Title/No./Work Order No. INSTALL BACKFLOW PREVENTER 2G-95-168/M		6. Bldg./Sys./Fac. No. 616/FIRE SYS		7. Impact Level 3S
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) SEE BLOCK 12		9. Related ECN No(s). N/A		10. Related PO No. N/A
11a. Modification Work [X] Yes (fill out Blk. 11b) [] No (NA Blks. 11b, 11c, 11d)	11b. Work Package No. 2G-95-168/M	11c. Modification Work Complete AUG 08 1996 Cog. Engineer Signature & Date 8-9-96		11d. Restored to Original Condition (Temp. or Standby ECN only) N/A Cog. Engineer Signature & Date	

12. Description of Change

H-6-10610 Rev. 0, Sheet 2
See pages 3 and 4 for details. Install DCVA on fire system riser and include in Riser Detail.
Make the changes reflected on this ECN.
H-6-1561 Rev. 6~~5~~, Sheet 1
See pages 5 and 6 for details. Show 4 wires to FACP.
Make the changes reflected on this ECN.
H-6-1608 Rev. 3, Sheet 1
See pages 7 and 8 for details. Show wiring configuration changes.
Make the changes reflected on this ECN.

13a. Justification (mark one)							
Criteria Change	[X]	Design Improvement	[]	Environmental	[]	As-Found	[]
Facilitate Const.	[]	Const. Error/Omission	[]	Design Error/Omission	[]		

13b. Justification Details

Changes to the design are required to facilitate the installation of a backflow preventer to meet the State of Washington Administrative Code 246-290-490.

14. Distribution (include name, MSIN, and no. of copies)

KM Pittman	S2-40	lea	STA 3	S2-05	
SM Korslund	S2-40	lea	STA 4	R1-29	
PJ McKenna	S2-42	lea	STA 20	T4-00	
MF Ferry	S2-40	lea	IPF #10	S2-40	
WL Craddock	S2-40	lea			
KM McDonald	T4-03	lea			
JP Bailey	S2-40	lea			

RELEASE STAMP

OFFICIAL RELEASE BY WHC

DATE JUN 06 1995

STA. 6

A-7900-013-2 (06/92) GEF095

ENGINEERING CHANGE NOTICE	Page 2 of 8	1. ECN (use no. from pg. 1) 196404

15. Design Verification Required	16. Cost Impact		17. Schedule Impact (days)
	ENGINEERING	CONSTRUCTION	
[] Yes	Additional [] $	Additional [] $	Improvement [] N/A
[X] No	Savings [] $ N/A	Savings [] $ N/A	Delay []

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

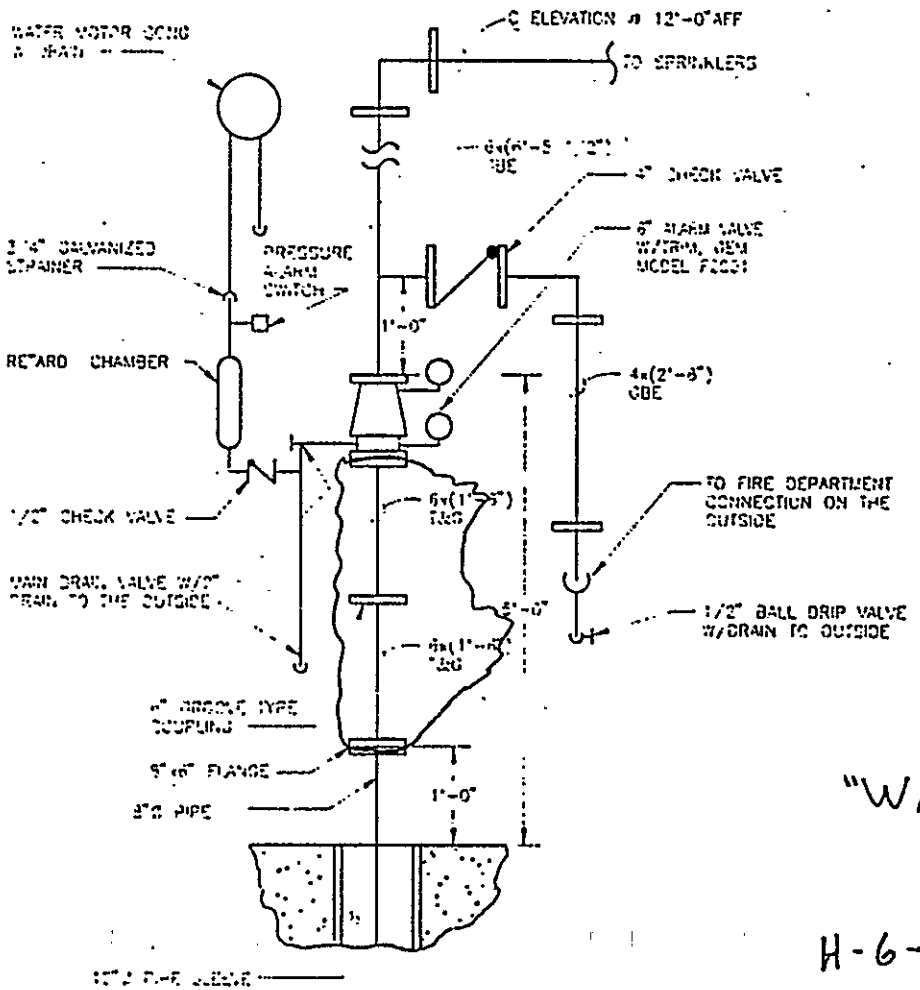
SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]		[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

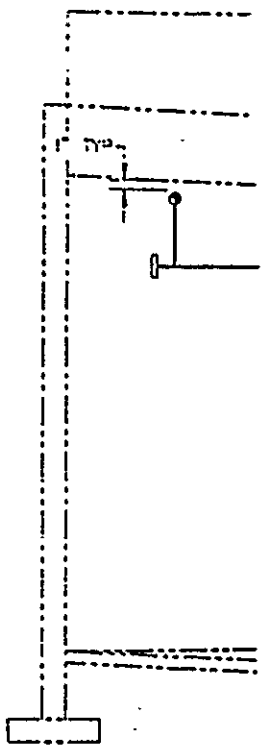
Document Number/Revision	Document Number/Revision	Document Number Revision

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog Engineer JP Bailey JP Bailey	5-18-95	PE	
Cog. Mgr. E Blankingship Blankingship	5-22-95	QA	
QA		Safety	
Safety PJ McKenna P.J. McKenna	5-18-95	Design	
Security		Environ.	
Environ.		Other	
Projects/Programs			
Tank Waste Remediation System			
Facilities Operations K.M. McDONALD K.M. McDonald	5/31/95	DEPARTMENT OF ENERGY	
Restoration & Remediation		Signature or Letter No.	
Operations & Support Services			
IRM		ADDITIONAL	
Other SM Korslund SM Korslund	5/21/95		
D.A. ROHL Doug A Rohl #2854	6/6/95		

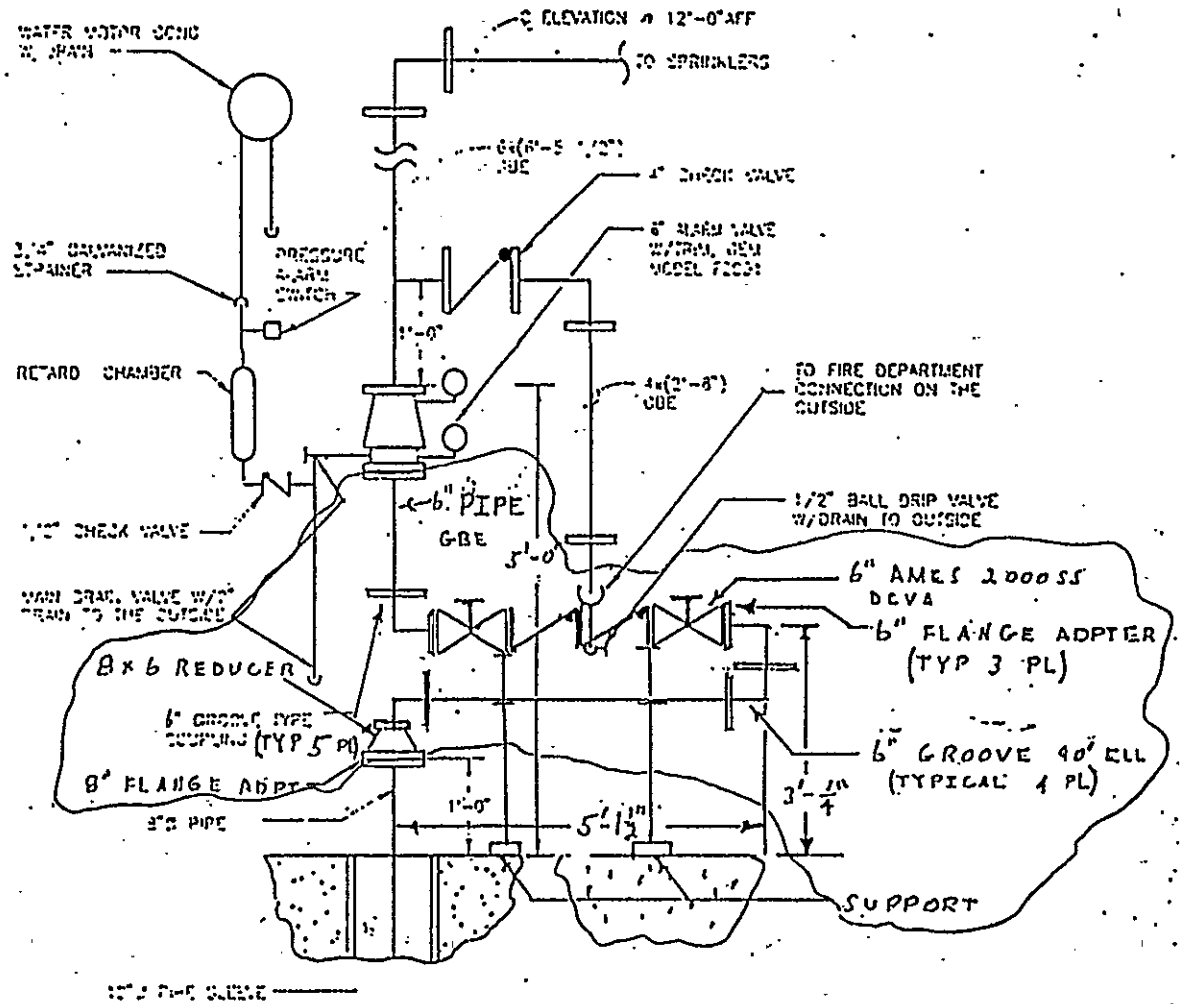


1 SH 1 RISER DETAIL



"WAS"

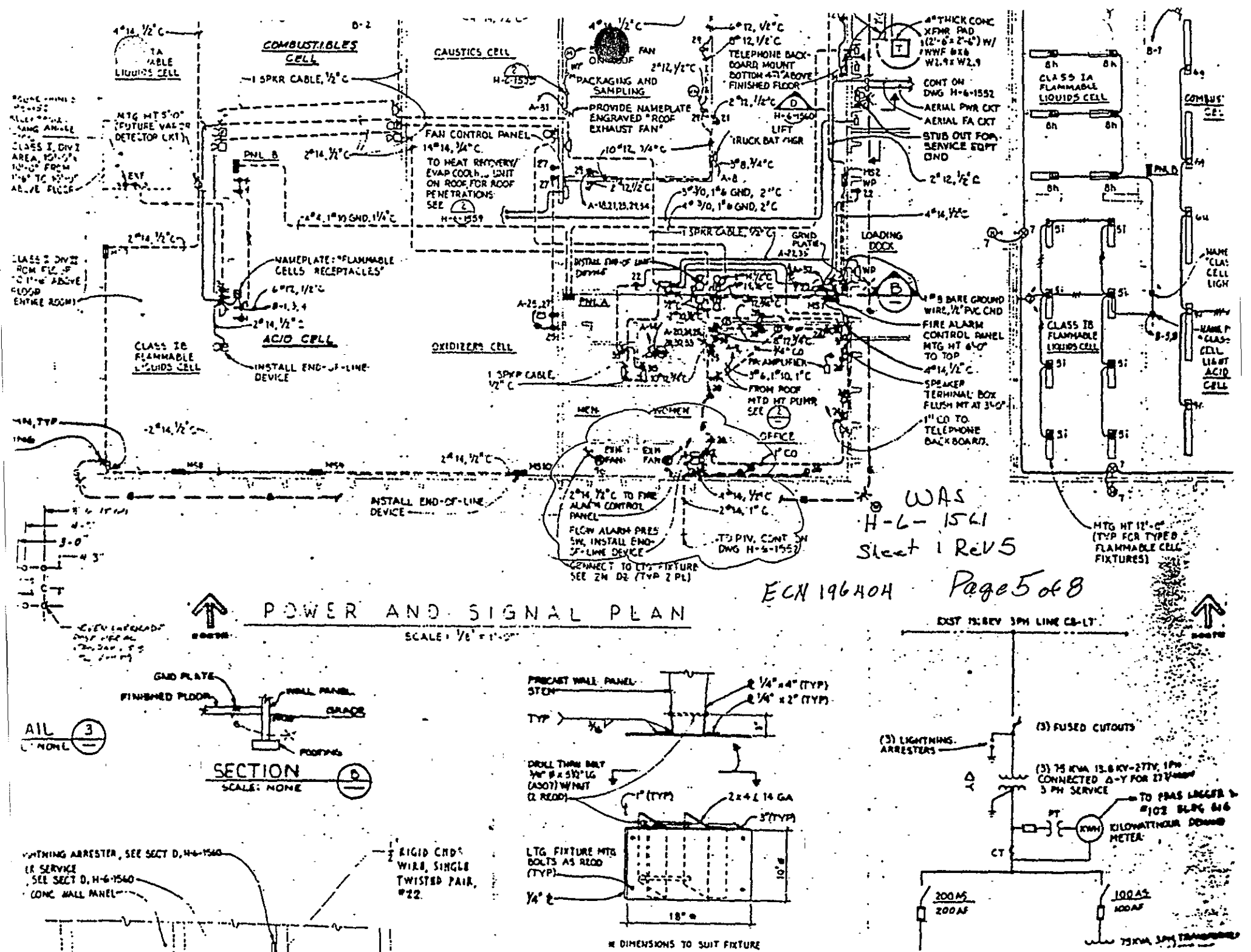
H-6-10610 Rev 0 Sht. 2
ECN 196404
Page 3 of 8



1 / SH 1 RISER DETAIL

"I S"

H-6-10610 Rev 0 Sht. 2
ECN 196404
Page 4 of 8

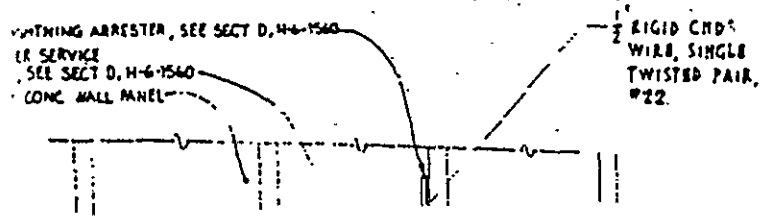


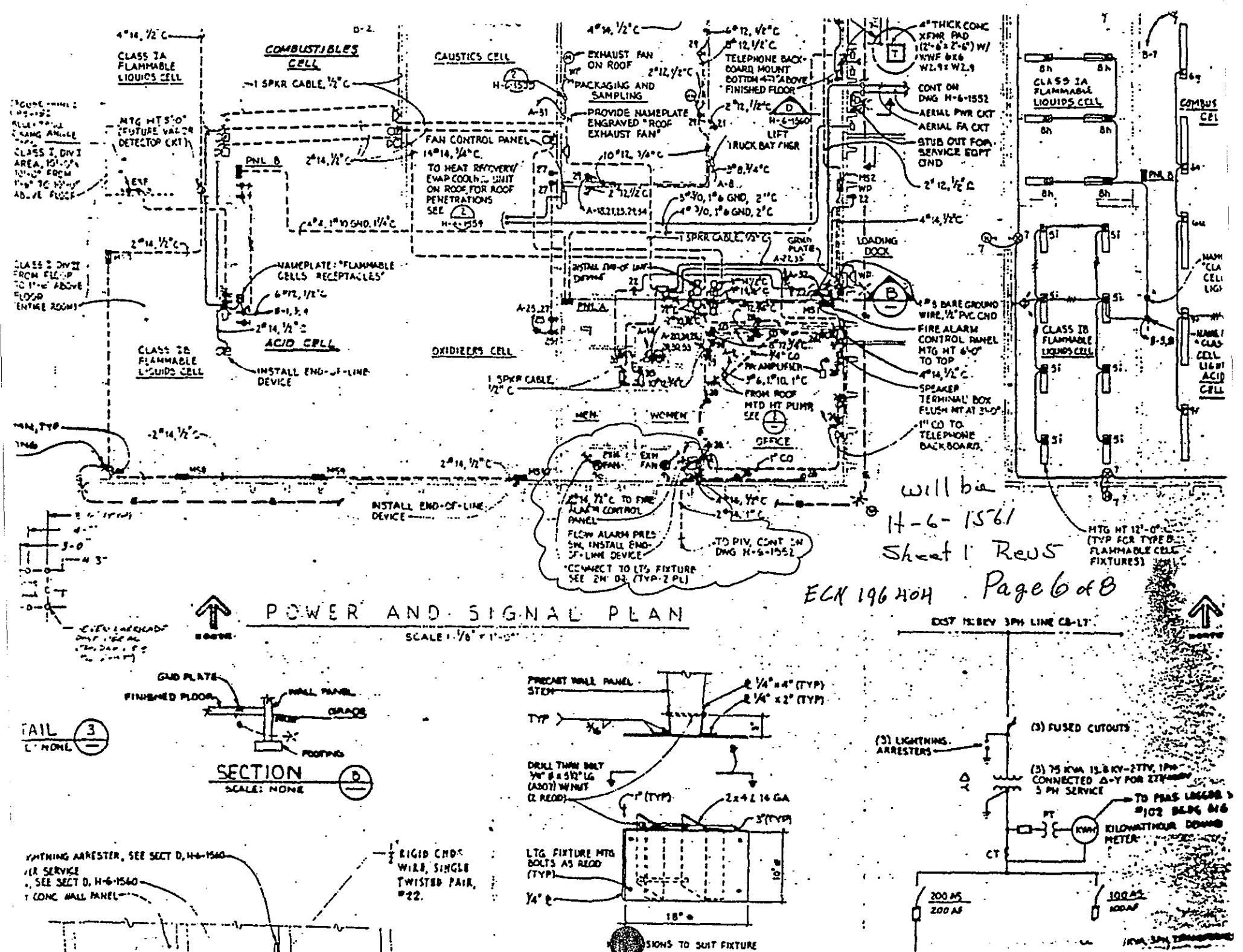
POWER AND SIGNAL PLAN

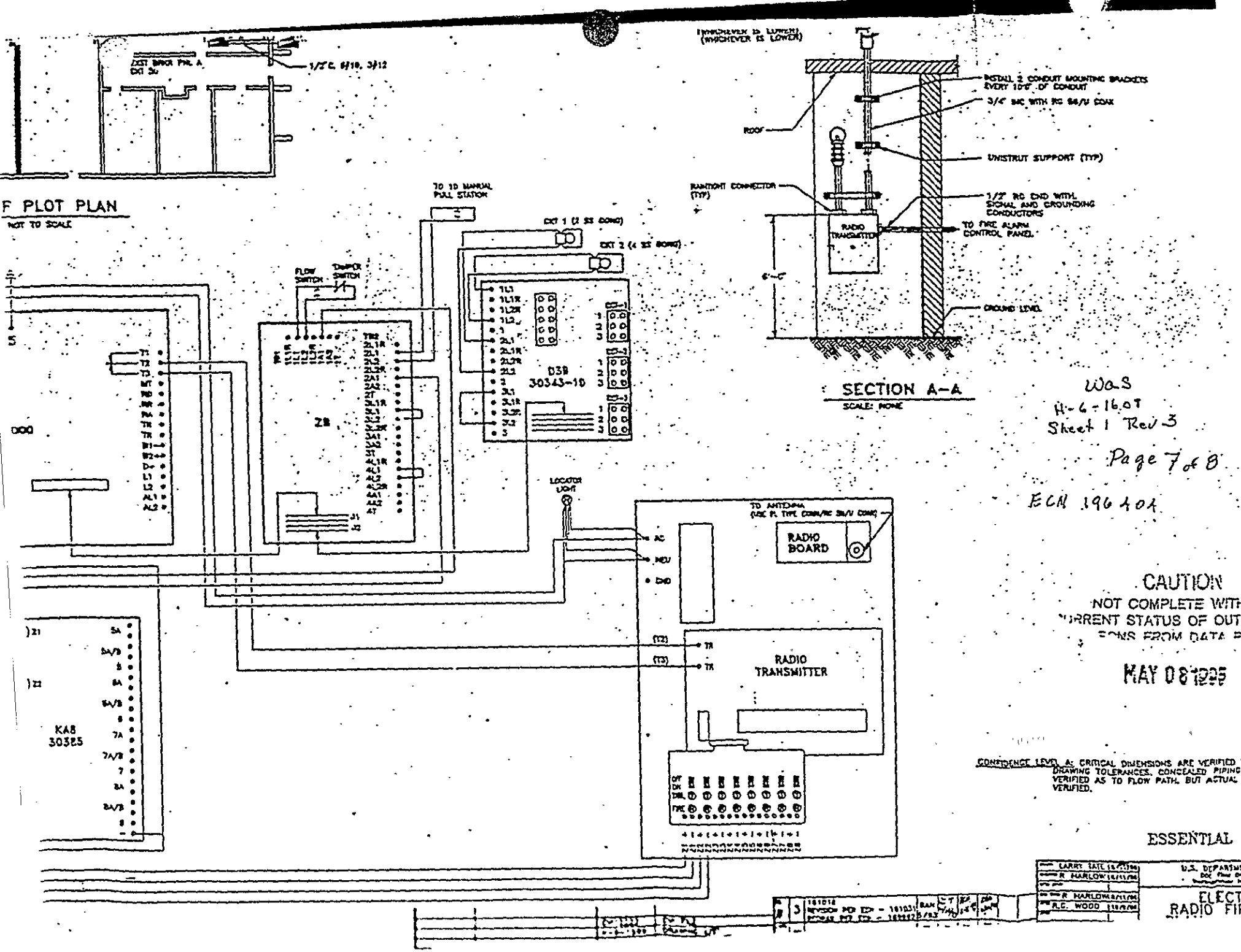
SCALE: 1/8" = 1'-0"

SECTION

SCALE: NONE




COMBUSTIBLES CELL
CAUSTICS CELL
CLASS IA FLAMMABLE LIQUIDS CELL
CLASS IB FLAMMABLE LIQUIDS CELL
ACID CELL
OXIDIZERS CELL
PACKAGING AND SAMPLING
LOADING DOCK
OFFICE
MEN
WOMEN
FAN CONTROL PANEL
EXHAUST FAN ON ROOF
FIRE ALARM CONTROL PANEL
PA AMPLIFIER
SPEAKER TERMINAL BOX
TELEPHONE BACKBOARD
INSTALL END-OF-LINE DEVICE
TO PIV, CONT ON DWG H-6-1562
CONNECT TO LT'S FIXTURE SEE 2M: D2 (TYP-2 PL)
POWER AND SIGNAL PLAN
SCALE: 1/8" = 1'-0"
will be H-6-1561 Sheet 1 Rev 5
ECN 196404
Page 6 of 8
SECTION
SCALE: NONE
(3) FUSED CUTOUTS
(3) LIGHTNING ARRESTERS
(3) 75 KVA 13.8 KV-277V, 1PH CONNECTED Δ-Y FOR 277/480V 3 PH SERVICE
KILOWATTHOUR DEMAND METER
200 AS
100 AS
DRILL THRU BOLT
LTG FIXTURE MTG BOLTS AS REQD (TYP)
PRECAST WALL PANEL
RIGID CNDT WIRE, SINGLE TWISTED PAIR, #22.



Was
H-6-16.07
Sheet 1 Rev 3

ECN 196101

CAUTION
NOT COMPLETE WITH
URRENT STATUS OF OUTS
ONS FROM DATA P

MAY 08 1995

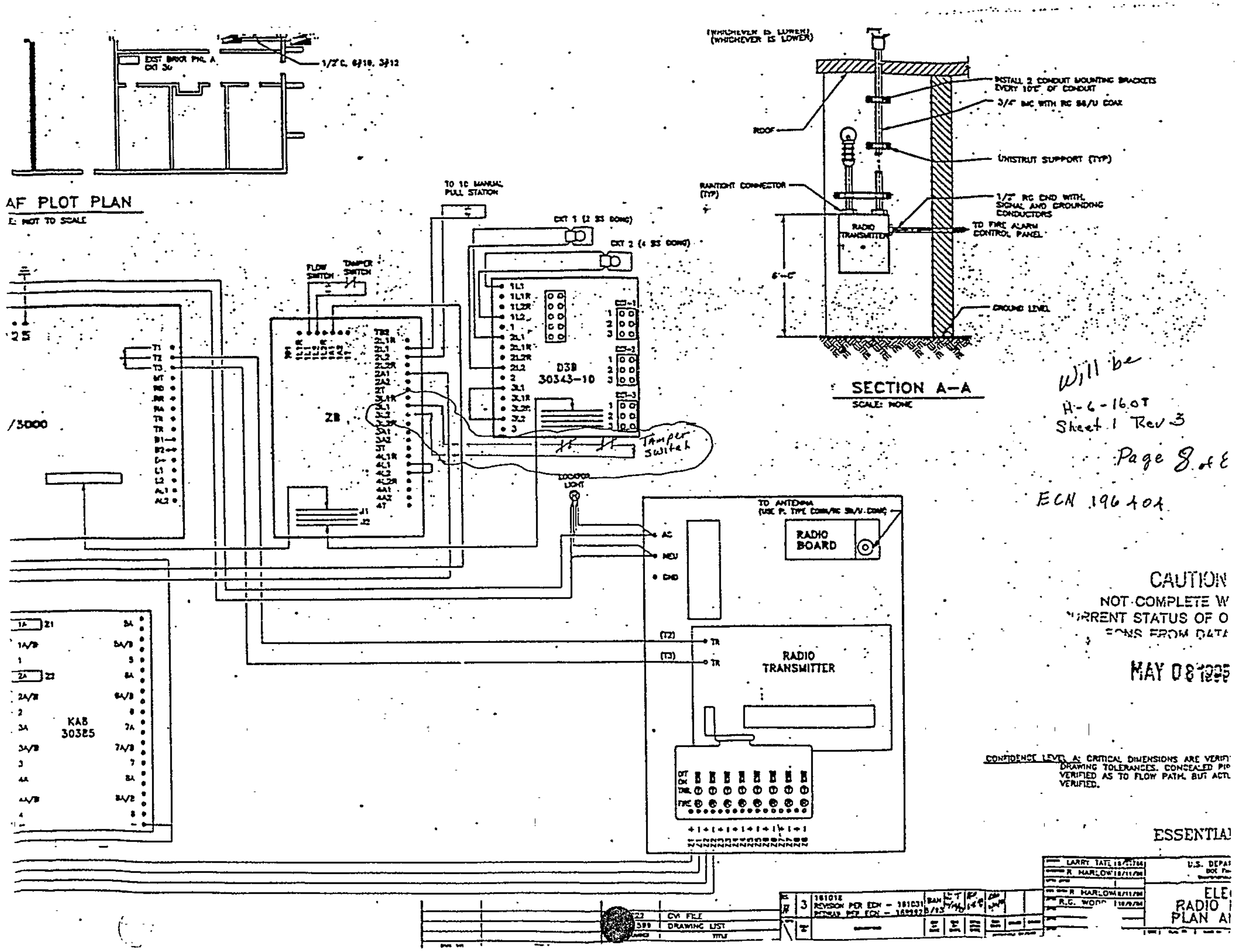
CONFIDENCE LEVEL A: CRITICAL DIMENSIONS ARE VERIFIED WI
DRAWING TOLERANCES. CONCEALED PIPING D
VERIFIED AS TO FLOW PATH, BUT ACTUAL R
VERIFIED.

ESSENTIAL D

LARRY SATE
R. HARLOW
R. HARLOW
R.C. WOOD

U.S. DEPARTMENT

ELECTRI
RADIO FIRE



AF PLOT PLAN
E: NOT TO SCALE
EXST BRICK PNL A
1/2"C, 6#10, 3#12
TO 1C MANUAL PULL STATION
CKT 1 (2 SS DONG)
CKT 2 (4 SS DONG)
FLOW SWITCH
TAMPER SWITCH
ZB
D3B
30343-10
/3000
KA8
30385
LOCATOR LIGHT
TO ANTENNA
RADIO BOARD
AC
NEU
GND
RADIO TRANSMITTER
(T2)
(T3)
TR
(WHICHEVER IS LOWER)
INSTALL 2 CONDUIT MOUNTING BRACKETS EVERY 10'-0" OF CONDUIT
3/4" IMC WITH RG 58/U COAX
ROOF
UNISTRUT SUPPORT (TYP)
RAINTIGHT CONNECTOR (TYP)
1/2" RG END WITH SIGNAL AND GROUNDING CONDUCTORS
TO FIRE ALARM CONTROL PANEL
6'-0"
GROUND LEVEL
SECTION A-A
SCALE: NONE
Tamper switch
Will be
H-6-16.0T
Sheet 1 Rev 3
Page 8 of E
ECN 196404
CAUTION
NOT COMPLETE W
CURRENT STATUS OF O
MAY 08 1995
CONFIDENCE LEVEL A: CRITICAL DIMENSIONS ARE VERIFI DRAWING TOLERANCES. CONCEALED PIP VERIFIED AS TO FLOW PATH, BUT ACTU VERIFIED.
ESSENTIA
CVI FILE
DRAWING LIST
LARRY TATE
R. HARLOW
R. HARLOW
R.C. WOOD
U.S. DEPA
ELE
RADIO
PLAN A

IPF 10

ESSENTIAL
ENGINEERING CHANGE NOTICE

1. ECN No 617727

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental [X] Direct Revision [] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	Eric M. Pierce, 87250, T4-03, 373-3861.	[] Yes [X] No	7-10-95
	5. Project Title/No./Work Order No. 616 Labeling/	6. Bldg./Sys./Fac. No. 616	7. Approval Designator N/A
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) See Block 12	9. Related ECN No(s). N/A	10. Related PO No. N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

Label Emergency Lighting, sirens and Paging Speakers on drawing H-6-1561 sheet 1 Rev. 6. Shown on pages 3 and 4 of this ECN.

13a. Justification (mark one)

Criteria Change	[X]	Design Improvement	[]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

13b. Justification Details

This ECN is to facilitate labeling of Emergency Lighting and Paging Speakers at the 616 Facility.

14. Distribution (include name, MSIN, and no. of copies)

LJ Gaschott, KR Busching; T4-03 lea.
Rel. Sta 6, 20, 3, 4, 5, 15
File, T4-03
NP Emerson, T4-03
PJ Crane, T4-04
JT Schorzman, T4-04

RELEASE STAMP

OFFICIAL RELEASE BY WHC 55
DATE OCT 20 1995
Sta. 5

A-7900-013-2 (11/94) GEF095

15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[X]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
WHC-SD-WM-EL-002/1		

20. Approvals

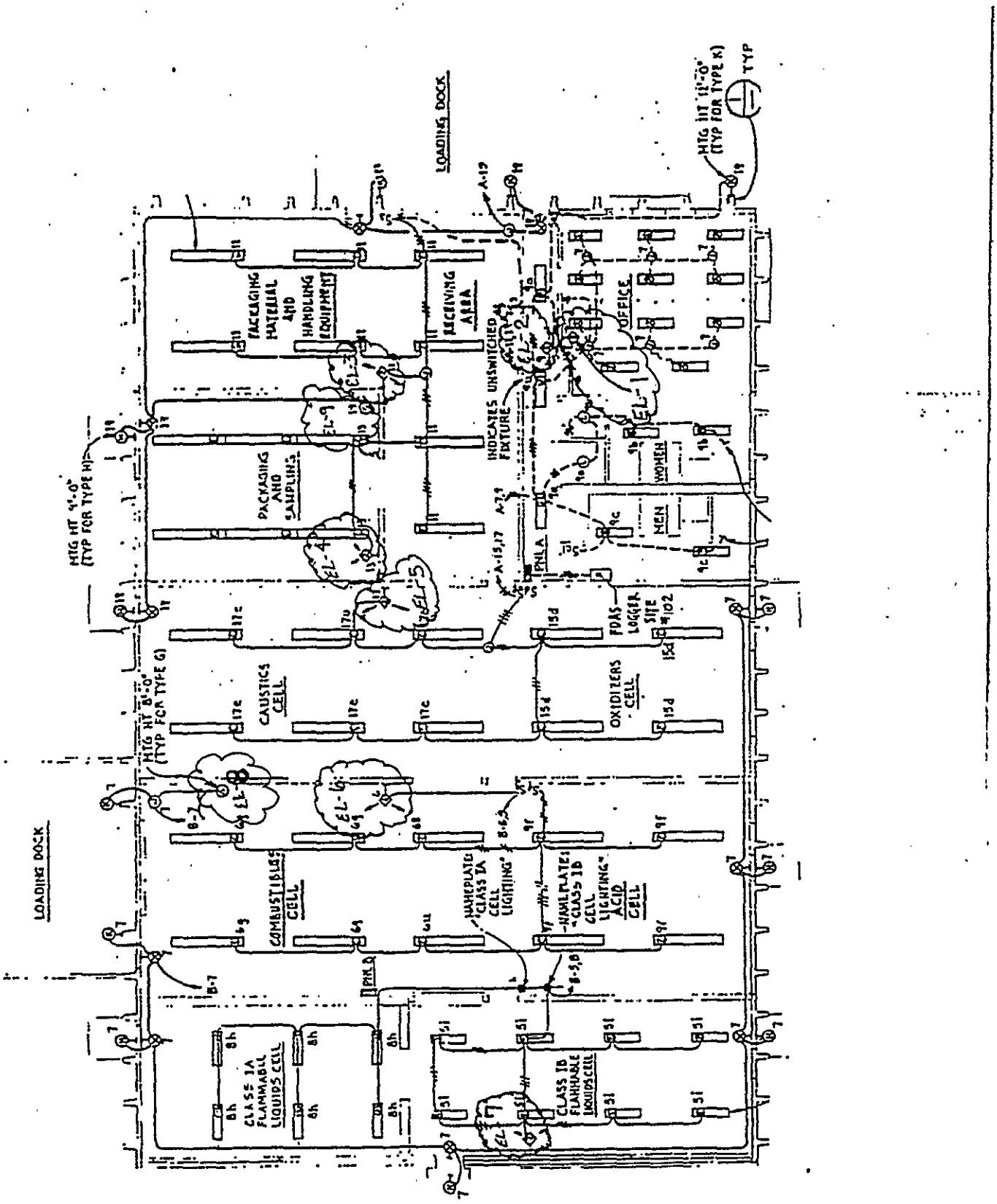
OPERATIONS AND ENGINEERING	Signature	Date
Cog. Eng. LJ GASCHOTT	LJ Gaschott	9/15/95
Cog. Mgr. DEAN POWELL	DC Powell	10/16/95
QA		
Safety		
Environ.		
Other KENT MCDONALD		

ARCHITECT-ENGINEER	Signature	Date
PE		
QA		
Safety		
Design		
Environ.		
Other		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

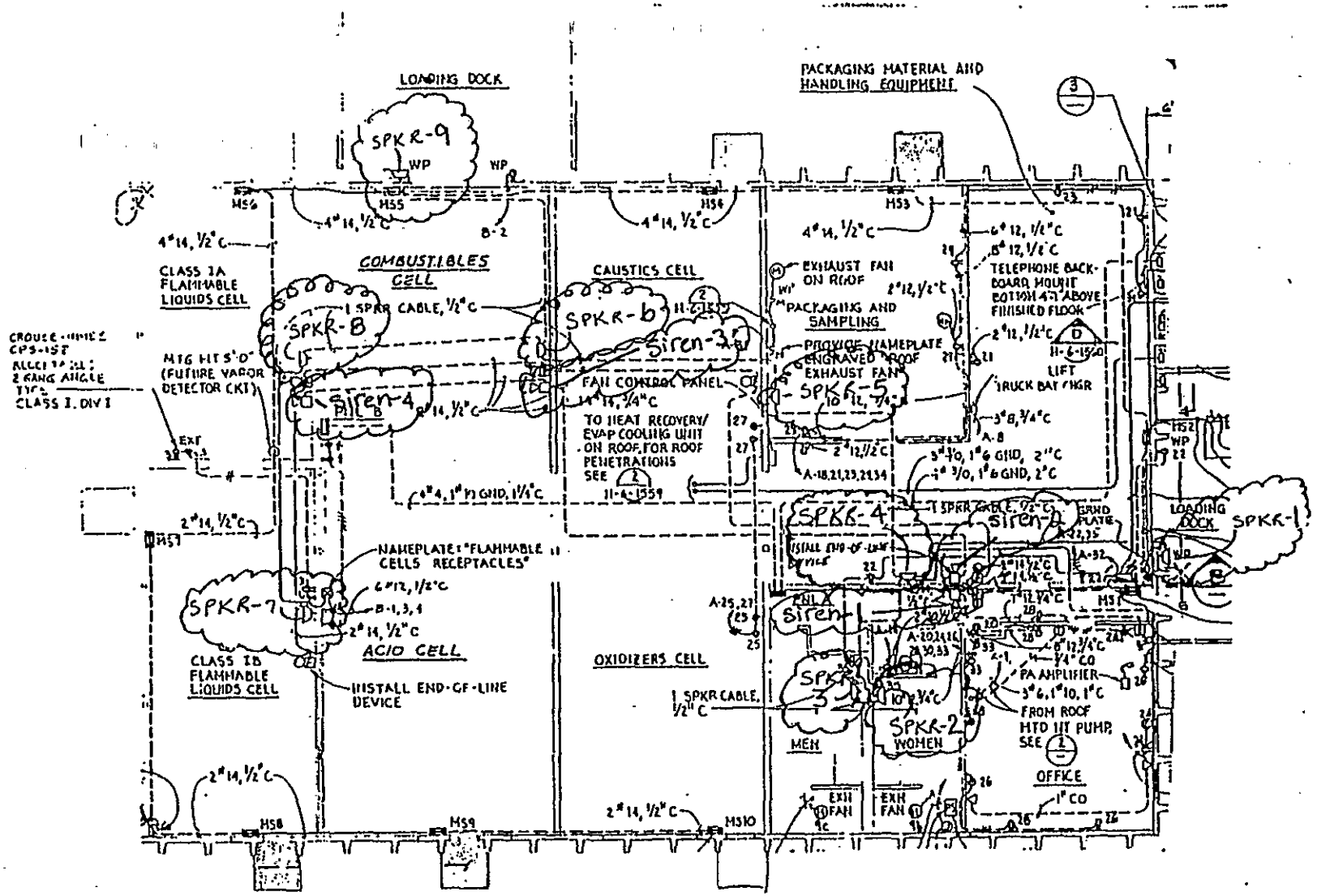
ADDITIONAL


LOADING DOCK
PACKAGING MATERIAL AND HANDLING EQUIPMENT
RECEIVING AREA
OFFICE
INDICATES UNSWITCHED FIXTURE
PACKAGING AND SAMPLING
WOMEN
MEN
FDAS LOCATER SITE #102
CAUSTICS CELL
OXIDIZERS CELL
COMBUSTIBLES CELL
NAMEPLATE "CLASS 1A CELL LIGHTING"
NAMEPLATE "CLASS 1B CELL LIGHTING"
ACID CELL
CLASS 1A FLAMMABLE LIQUIDS CELL
CLASS 1B FLAMMABLE LIQUIDS CELL
LOADING DOCK
HTG HT 11'-0" (TYP FOR TYPE K) TYP
HTG HT 9'-0" (TYP FOR TYPE H)
HTG HT 8'-0" (TYP FOR TYPE G)

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1) 617727

Page 4 of 4



A-7900-013-3 (11/94) GEF096

APPENDIX 4C

CONTAINMENT CALCULATIONS

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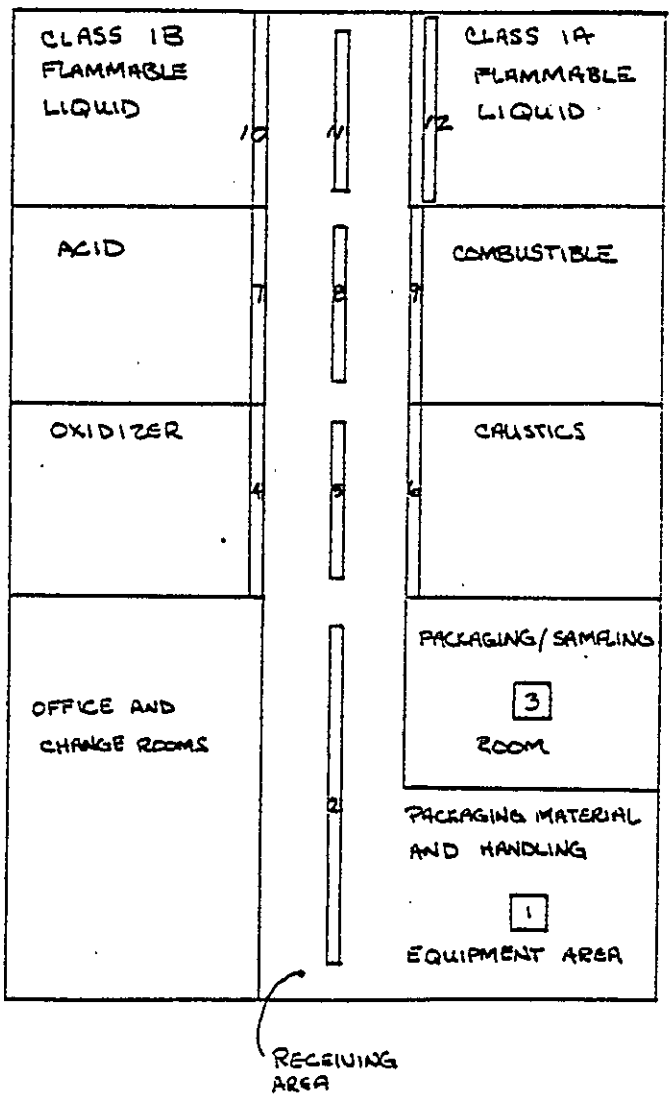
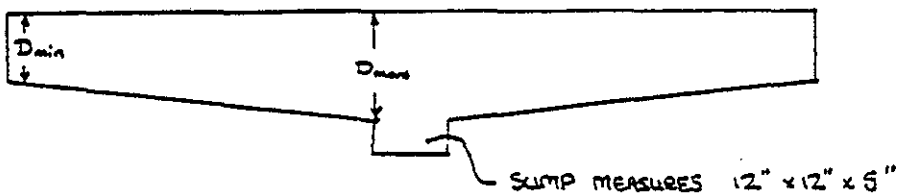
NRDWSF TRENCHES AND SUMPS

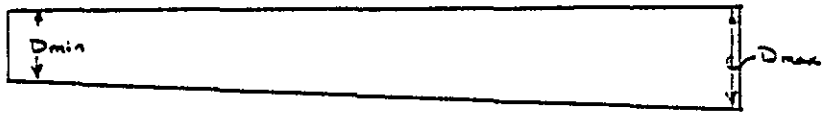


TRENCHES 4, 6, 7, 9, 10 AND 12 :



TRENCH	L	W	Dmin	Dmax
4	20'	12"	16"	18"
6	20'	12"	16"	18
7	22'-4"	12"	16"	18½
9	22'-4"	12"	16"	18
10	17'-4"	12"	15½"	17
12	15'-10"	12"	16"	17

TRENCHES 2, 5, 8, AND 11



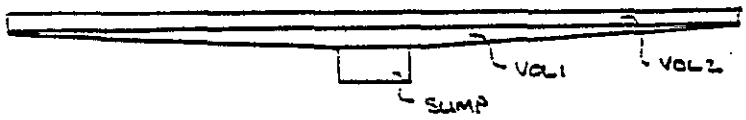
TRENCH	L	W	Dmin	Dmax
2	35'-2"	12"	8"	15"
5	14-2	12	12	14
8	16-3	12	13	15
11	11-3	12	13	14

TRENCHES 1 AND 3

THESE TRENCHES ARE CUBES 3' ON A SIDE

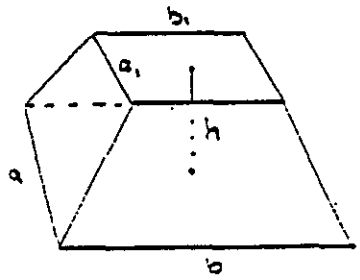
VOLUME = 27 ft^3 OR 202 gal (7.48 gal/ft^3)

TRENCH VOLUME CALCULATIONS FOR 4, 6, 7, 9, 10 AND 12:



THESE TRENCHES ARE BROKEN INTO 3 VOLUME SEGMENTS VOL1, VOL 2 AND SUMP. THE SUMP ON ALL TRENCHES IS IDENTICAL.

VOL1 WILL BE CALCULATED USING THE FORMULA FOR AN OBELISK:



$$\text{VOLUME} = \frac{1}{6} h \left[ab + (a+a_1)(b+b_1) + a_1 b_1 \right]$$

$$h = D_{max} - D_{min}$$

VOL2 IS A SOLID RECTANGLE $D_{min} \times L \times W$

THE SUMP VOLUME IS $1' \times 1' \times \frac{5}{12}' = 0.42\ ft^3$

VOL1

TRENCH	a	a_1	b	b_1	h	VOL1
4	1 ft	1 ft	20 ft	1 ft	0.17 ft	1.79
6	1	1	20	1	0.17	1.79
7	1	1	22.33	1	0.21	2.45
9	1	1	22.33	1	0.17	1.98
10	1	1	17.33	1	0.13	1.19
12	1	1	15.83	1	0.08	0.67

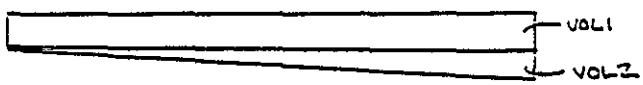
VOL2

TRENCH	D_{min}	L	W	VOL2
4	1.33 ft	20 ft	1 ft	26.6 ft^3
6	1.33	20	1	26.6
7	1.33	22.33	1	29.7
9	1.33	22.33	1	29.7
10	1.29	17.33	1	22.4
12	1.33	15.83	1	21.0

TRENCH	VOL1	VOL2	SUMP	TOTAL
4	1.79 ft³	26.6 ft³	0.42 ft³	28.8 ft³
6	1.79	26.6	0.42	28.8
7	2.45	29.7	0.42	32.6
9	1.98	29.7	0.42	32.1
10	1.19	22.4	0.42	24.0
12	0.67	21.0	0.42	22.1

TRENCH CALCULATIONS FOR 2, 5, 8 AND 11

THESE TRENCHES ARE BROKEN INTO 2 VOLUME ELEMENTS VOL1 AND VOL2.

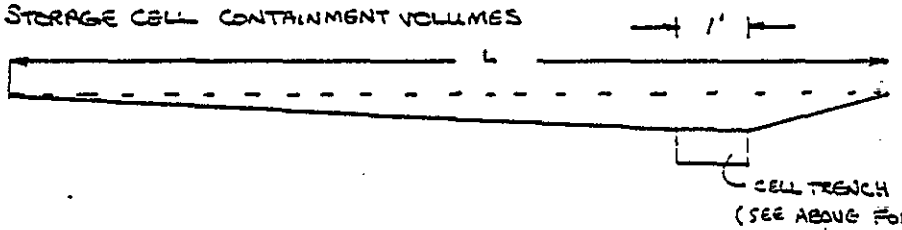


VOL1 = L x W x Dmin

VOL2 = ½ L x W x (Dmax - Dmin)

TRENCH	L (ft)	W (ft)	Dmin	Dmax-Dmin	VOL1	VOL2	TOTAL
2	35.17	1	0.67 ft	0.58 ft	23.56 ft³	10.20 ft³	33.76 ft³
5	14.17	1	1	0.17	14.17	1.20	15.37
8	16.25	1	1.08	0.17	17.55	1.38	18.93
11	11.25	1	1.08	0.08	12.15	0.45	12.60

STORAGE CELL CONTAINMENT VOLUMES



THE CELL CONTAINMENT VOLUME WILL BE CALCULATED USING THE FORMULA FOR AN OBELISK AGAIN

CELL	a	a1	b	b1	h	VOLUME
Packaging/Samp.	21.9 ft	3 ft	25.9 ft	3 ft	0.08	17.3 ft³
OXIDIZER	21.33	21.3	29.6	1	0.25	81.5
CAUSTIC	21.3	21.3	29.6	1	0.25	81.5
ACID	23.5	23.5	29.6	1	0.25	89.8
COMBUSTIBLE	23.5	23.5	29.6	1	0.25	89.8
CLASS 1B	17.4	17.4	32.2	1	0.25	72.2
CLASS 1A	17.2	17.2	28.4	1	0.25	63.1

TOTAL CELL CONTAINMENT VOLUME IS THE SUM OF THE CELL TRENCH VOLUME AND CELL CONTAINMENT VOLUME

CELL	TRENCH	CONTAINMENT	TOTAL CONTAINMENT VOLUME		
Packaging/Samp.	27 ft³	17.3 ft³	44.3 ft³	OR	331 gal
OXIDIZER	28.8	81.5	110.3		825
CAUSTIC	28.8	81.5	110.3		825
ACID	32.6	89.8	122.4		915
COMBUSTIBLE	32.1	89.8	121.9		912
CLASS 1B	24.0	72.2	96.2		719
CLASS 1A	22.1	63.1	85.2		637

MAXIMUM STORED CAPACITY OF EACH CELL

CELL	TIER 1	TIER 2†	TOTAL VOLUME
OXIDIZER	50 · 55 gal	40·55/10·30	5250 gal
CAUSTIC	50 · 55	40·55/10·30	5250
ACID	60 · 55	40·55/20 30	6100
COMBUSTIBLE	58·55	40·55/18·30	5930
CLASS 1B	40·55	40·30	3400
CLASS 1A	32·55	32·20	2535*

† TIER 2 SINGLE ROWS: CONTAINERS MAY BE NO LARGER THAN 30 GALLONS

* INCLUDING A 135 GALLON STORAGE CABINET

APPENDIX 4D

CONCRETE SEALANT PROPERTIES AND PERFORMANCE DATA

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*** MATERIAL SAFETY DATA SHEET ***

date of prep : 07/12/95 A07870100604 (page 1)

SECTION I

manufacturer : STEELCOTE MANUFACTURING COMPANY
address : ONE STEELCOTE SQUARE
ST. LOUIS, MO
63103
telephone# : (314) 771-8053
emergency# : (800) 424-9300 CHEMTREC

- H M I S -

HEALTH	: 3
FLAMMABILITY	: 1
REACTIVITY	: 0
PERSONAL PROTECT.:	

product class: EPOXY CURING AGENT (HAZARD RATING : 0=least, 1=slight, 2=moderate, 3=high, 4=extreme, *=chronic)
mfg. code id : A07870100A04
trade name : COLORTOP SELF-LEVELING EPOXY PTA

SECTION II-A HAZARDOUS COMPONENTS

no.	component	CAS#	% by wt.	SARA	vapor pressure (mm Hg @ 20 C)	LEL (@ 25 C)
1	NONYL PHENOL	25154-52-3	35 - 40	NO	1.00	N/A
2	POLYOXYPROPYLENE DIAMINE	9046-10-0	30 - 35	NO	1.00 @ 100 C	N/A
3	PIPERAZINE-ETHANAMINE	140-31-8	5 - 10	NO	.05	N/A
4	POLYPROPYLENE GLYCOL GLYCIDYL ETHER	9072-62-2	20 - 25	NO	N/A	N/A

>> None of the components of this product are recognized as carcinogenic.

(N/A = not applicable)

SECTION II-B OCCUPATIONAL EXPOSURE LIMITS

no.	(OSHA) PEL/TWA	PEL/CEILING	PEL/STEL	skin
1	N/E	N/E	N/E	N/E
2	N/E	N/E	N/E	N/E
3	N/E	N/E	N/E	N/E
4	N/E	N/E	N/E	N/E

no.	(ACGIH) TLV/TWA	TLV/CEILING	TLV/STEL	skin
1	N/E	N/E	N/E	N/E
2	N/E	N/E	N/E	N/E
3	N/E	N/E	N/E	N/E
4	N/E	N/E	N/E	N/E

>> The dried film of this product may become a dust nuisance when removed by sanding or grinding. OSHA recommends a PEL/TWA of 15 mg/m3 for total dust and 5 mg/m3 for the respirable fraction. ACGIH recommends a TLV/TWA of 10 mg/m3 for total dust.
>> (SKIN) absorption may contribute to the overall exposure to this material. Take appropriate measures to prevent skin contact.

(N/E = not established)

SECTION III PHYSICAL DATA

boiling point : not established
evaporation rate : < 1 (ether = 1)
vapor density : > 1 (air = 1)
% volatile by volume : not applicable
% volatile by weight : not applicable
weight per gallon : 8.13 (theoretical)

MSDS# 029326

SECTION IV — HEALTH INFORMATION

EYE CONTACT

BASED ON THE PRESENCE OF COMPONENTS 1, 2 AND 3 PRODUCT IS PRESUMED TO BE CORROSIVE TO THE EYES. EXPOSURE MAY CAUSE CHEMICAL BURNS AND EXTENSIVE CORNEAL INJURY.

SKIN CONTACT

BASED ON THE PRESENCE OF COMPONENTS 1, 2 AND 3 PRODUCT IS PRESUMED TO BE CORROSIVE TO THE SKIN AND EXPOSURE MAY CAUSE CHEMICAL BURNS. BASED ON THE PRESENCE OF COMPONENT 2 PROLONGED OR REPEATED CONTACT MAY RESULT IN DEFATTING AND DRYING OF THE SKIN WHICH MAY RESULT IN DERMATITIS. BASED ON THE PRESENCE OF COMPONENT 2 CONTACT WITH THE SKIN MAY RESULT IN SKIN SENSITIZATION TO AMINES, POLYAMINES, POLYAMIDES AND RELATED COMPOUNDS. INDIVIDUALS WHO HAVE DEVELOPED A SKIN SENSITIZATION CAN DEVELOP THESE SYMPTOMS AS A RESULT OF CONTACT WITH VERY SMALL AMOUNTS OF LIQUID MATERIAL OR AS A RESULT OF EXPOSURE TO VAPOR. THIS SKIN SENSITIZATION MAY BE TEMPORARY OR PERMANENT. ONCE AN INDIVIDUAL IS DIAGNOSED AS BEING SENSITIZED, NO FURTHER EXPOSURE CAN BE PERMITTED. BASED ON THE PRESENCE OF COMPONENT 4 CONTACT WITH THE SKIN MAY RESULT IN SKIN SENSITIZATION. INDIVIDUALS WHO HAVE DEVELOPED A SKIN SENSITIZATION CAN DEVELOP THESE SYMPTOMS AS A RESULT OF CONTACT WITH VERY SMALL AMOUNTS OF MATERIAL OR AS A RESULT OF EXPOSURE TO VAPOR. THIS SKIN SENSITIZATION MAY BE TEMPORARY OR PERMANENT. ONCE AN INDIVIDUAL IS DIAGNOSED AS BEING SENSITIZED, NO FURTHER EXPOSURE CAN BE PERMITTED.

INHALATION

BASED ON THE PRESENCE OF COMPONENT 2 PRODUCT VAPORS AND/OR MISTS ARE CORROSIVE TO THE NOSE, THROAT, RESPIRATORY TRACT, AND OTHER MUCOUS MEMBRANES. OVEREXPOSURE MAY RESULT IN CHEMICAL PNEUMONITIS OR PULMONARY EDEMA WHICH ARE POTENTIALLY FATAL.

INGESTION

BASED ON THE PRESENCE OF COMPONENT 4 PRODUCT IS PRESUMED TO BE SLIGHTLY TOXIC.

SIGNS AND SYMPTOMS

SYMPTOMS OF EYE IRRITATION INCLUDE PAIN, TEARING, REDDENING AND SWELLING. SYMPTOMS OF SKIN IRRITATION INCLUDE REDDENING, SWELLING, RASH AND RDNESS. SYMPTOMS OF RESPIRATORY IRRITATION INCLUDE RUNNY NOSE, SORE THROAT, COUGHING, CHEST DISCOMFORT, SHORTNESS OF BREATH AND REDUCED LUNG FUNCTION. SYMPTOMS OF GASTROINTESTIONAL IRRITATION INCLUDE SORE THROAT, ABDOMINAL PAIN, NAUSEA, VOMITING AND DIARRHEA. BASED ON THE PRESENCE OF COMPONENT 2 SKIN SENSITIZATION RESULTS IN ALLERGIC DERMATITIS WHICH MAY INCLUDE RASH, ITCHING, HIVES AND SWELLING OF EXTREMITIES. BASED ON THE PRESENCE OF COMPONENT 2 LUNG SENSITIZATION RESULTS IN ASTHMA-LIKE SYMPTOMS: CHEST TIGHTNESS, SHORTNESS OF BREATH, WHEEZING AND COUGHING. THESE SYMPTOMS MAY BE IMMEDIATE OR DELAYED UP TO SEVERAL HOURS.

AGGRAVATED MEDICAL CONDITIONS

PREEXISTING SKIN, EYE AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT. PERSONS WITH ASTHMATIC-TYPE CONDITIONS, CHRONIC BRONCHITIS, OTHER CHRONIC RESPIRATORY DISEASES, RECURRENT SKIN ECZEMA, SENSITIZATION OR ALERGIES SHOULD BE EXCLUDED FROM WORKING WITH AMINES, POLYAMINES, POLYAMIDES AND RELATED COMPOUNDS.

OTHER HEALTH EFFECTS

BASED ON THE PRESENCE OF COMPONENT 3 NITRITES MAY REACT WITH SECONDARY OR TERTIARY AMINES UNDER CERTAIN CONDITIONS TO FORM CARCINOGENIC NITROSAMINES.

SECTION V — EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT

IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS OPEN. SEEK PROMPT MEDICAL ATTENTION.

SKIN CONTACT

REMOVE CONTAMINATED CLOTHING AND SHOES. WIPE EXCESS FROM SKIN AND FLUSH WITH WATER USING SOAP IF AVAILABLE. SEEK MEDICAL ATTENTION IF IRRITATION OCCURS. DO NOT REUSE CLOTHING UNTIL THOROUGHLY DECONTAMINATED. CONTAMINATED LEATHER ARTICLES CANNOT BE DECONTAMINATED AND SHOULD BE DISPOSED.

INHALATION

GROSS OVER EXPOSURE TO NUISANCE PARTICLES MAY CAUSE IRRITATION OF THE RESPIRATORY TRACT.

MSDS#029326

INGESTION

DO NOT INDUCE VOMITING. VOMITING WILL CAUSE FURTHER DAMAGE TO THE THROAT. DILUTE BY GIVING WATER OR MILK TO DRINK IF THE VICTIM IS CONSCIOUS. CONSULT A PHYSICIAN, HOSPITAL OR POISON CONTROL CENTER AND/OR TRANSPORT TO AN EMERGENCY FACILITY IMMEDIATELY.

SECTION VI — FIRE AND EXPLOSION HAZARDS

flammability classification - OSHA : COMBUSTIBLE LIQUID - CLASS IIIB
- DOT : NOT REGULATED .

flash point : 200 TCC

EXTINGUISHING MEDIA

USE WATER FOG, FOAM, DRY CHEMICAL OR CARBON DIOXIDE.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

CLEAR FIRE AREA OF UNPROTECTED PERSONNEL. DO NOT ENTER CONFINED FIRE SPACE WITHOUT HELMET, FACE SHIELD, BUNKER COAT, GLOVES, RUBBER BOOTS, AND A POSITIVE PRESSURE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

CONTAINERS EXPOSED TO INTENSE HEAT FROM FIRES SHOULD BE COOLED WITH WATER TO PREVENT VAPOR PRESSURE BUILDUP WHICH COULD RESULT IN CONTAINER RUPTURE. CONTAINER AREAS EXPOSED TO DIRECT FLAME CONTACT SHOULD BE COOLED WITH LARGE QUANTITIES OF WATER AS NEEDED TO PREVENT WEAKENING OF CONTAINER STRUCTURE.

SECTION VII — REACTIVITY

STABILITY : STABLE — HAZARDOUS POLYMERIZATION : WILL NOT OCCUR .

CONDITIONS AND MATERIALS TO AVOID

BASED ON THE PRESENCE OF COMPONENT 2 AVOID OXIDIZING MATERIALS. BASED ON THE PRESENCE OF COMPONENTS 3 AND 4 AVOID STRONG ACIDS. BASED ON THE PRESENCE OF COMPONENT 4 AVOID AMINES AND ALKANOLAMINES. BASED ON THE PRESENCE OF COMPONENT 3 AVOID WATER CONTAMINATION.

HAZARDOUS DECOMPOSITION PRODUCTS

OXIDES AND COMPOUNDS OF NITROGEN, AMMONIA, ALDEHYDES AND ACIDS, CARBON DIOXIDE, CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED DURING COMBUSTION.

SECTION VIII — EMPLOYEE PROTECTION

RESPIRATORY PROTECTION

USE VENTILATION AS REQUIRED TO CONTROL VAPOR CONCENTRATIONS - AT LEAST 10 AIR CHANGES PER HOUR ARE RECOMMENDED FOR GOOD GENERAL ROOM VENTILATION. IF EXPOSURE EXCEEDS THE PEL/TLV, USE THE APPROPRIATE NIOSH-APPROVED RESPIRATOR.

PROTECTIVE CLOTHING

WEAR SAFTEY GLASSES, GOGGLES, OR A SPLASH SHIELD TO PREVENT EYE CONTACT. CONTACT LENSES SHOULD NOT BE WORN. WEAR APPROPRIATE GLOVES AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND CLOTHING.

ADDITIONAL PROTECTIVE MEASURES

EYE WASH FOUNTAINS AND SAFETY SHOWERS SHOULD BE AVAILABLE FOR USE IN AN EMERGENCY.

MSDS# 029326

SECTION IX — ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES

LARGE SPILLS >> EVACUATE THE HAZARD AREA OF UNPROTECTED PERSONNEL. WEAR APPROPRIATE RESPIRATOR AND PROTECTIVE CLOTHING. SHUT OFF SOURCE OF LEAK ONLY IF SAFE TO DO SO. DIKE AND CONTAIN. IF VAPOR CLOUD FORMS, WATER FOG MAY BE USED TO SUPPRESS; CONTAIN RUN-OFF. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL; PLACE IN NON-LEAKING CONTAINERS FOR PROPER DISPOSAL. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE; DISPOSE OF FLUSH SOLUTIONS AS ABOVE. SMALL SPILLS >> TAKE UP WITH AN ABSORBENT MATERIAL AND PLACE IN NON-LEAKING CONTAINERS; SEAL TIGHTLY FOR PROPER DISPOSAL.

WASTE DISPOSAL

OBSERVE ALL FEDERAL, STATE, AND LOCAL REGULATIONS REGARDING PROPER DISPOSAL.

SECTION X — ADDITIONAL PRECAUTIONS

CONTAINERS CAN CONTAIN HAZARDOUS PRODUCT RESIDUES EVEN WHEN EMPTY. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES.

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*** MATERIAL SAFETY DATA SHEET ***

date of prep : 07/12/95 — A0787A023B04 (page 1)

SECTION I

manufacturer : STEELCOTE MANUFACTURING COMPANY
address : ONE STEELCOTE SQUARE
ST. LOUIS, MO
63103
telephone : (314) 771-8053
emergency : (800) 424-9300 CHEMTREC

- H M I S -

HEALTH	: 2
FLAMMABILITY	: 1
REACTIVITY	: 0
PERSONAL PROTECT.	:

product class: EPOXY COATING
mfg. code id : A0787A023B04
trade name : COLORTOP PART B (NON-LEADED COLORS)

(HAZARD RATING : 0=least, 1=slight, 2=moderate, 3=high, 4=extreme, *=chronic)

SECTION II-A — HAZARDOUS COMPONENTS

no.	component	CAS#	SARA	vapor pressure (mm Hg @ 20 C)	LEL (@ 25 C)
1	BISPHENOL A/EPICHLOROHYDRIN RESIN	25068-38-6	NO	N/A	N/A
2	TITANIUM DIOXIDE	13463-67-7	NO	N/A	N/A

>> None of the components of this product are recognized as carcinogenic.

(N/A = not applicable)

SECTION II-B — OCCUPATIONAL EXPOSURE LIMITS

no.	(OSHA) PEL/TWA	PEL/CEILING	PEL/STEL	skin
1	N/E	N/E	N/E	N/E
2	15 mg/m3	N/E	N/E	N/E

no.	(ACGIH) TLV/TWA	TLV/CEILING	TLV/STEL	skin
1	N/E	N/E	N/E	N/E
2	10 mg/m3 Total Dust	N/E	N/E	N/E

>> The dried film of this product may become a dust nuisance when removed by sanding or grinding. OSHA recommends a PEL/TWA of 15 mg/m3 for total dust and 5 mg/m3 for the respirable fraction. ACGIH recommends a TLV/TWA of 10 mg/m3 for total dust.
>> (SKIN) absorption may contribute to the overall exposure to this material. Take appropriate measures to prevent skin contact.

(N/E = not established)

SECTION III — PHYSICAL DATA

boiling point	: not established	% volatile by volume	: .24 (Theoretical)
evaporation rate	: < 1 (ether = 1)	% volatile by weight	: .17 (Theoretical)
vapor density	: > 1 (air = 1)	weight per gallon	: 10.24 (Theoretical)

SECTION IV — HEALTH INFORMATION

EYE CONTACT
ANY FOREIGN MATERIAL GOTTEN INTO THE EYE MAY CAUSE IRRITATION.

SKIN CONTACT

EPOSURE MAY PRODUCE SKIN IRRITATION. BASED ON THE PRESENCE OF COMPONENT 1 CONTACT WITH THE SKIN MAY RESULT IN SKIN SENSITIZATION TO EPOXIES. INDIVIDUALS WHO HAVE DEVELOPED A SKIN SENSITIZATION CAN DEVELOP THESE SYMPTOMS AS A RESULT OF CONTACT WITH VERY SMALL AMOUNTS OF LIQUID MATERIAL OR AS A RESULT OF EXPOSURE TO VAPOR. THIS SKIN SENSITIZATION MAY BE TEMPORARY OR PERMANENT. ONCE AN INDIVIDUAL IS DIAGNOSED AS BEING SENSITIZED, NO FURTHER EXPOSURE CAN BE PERMITTED.

INHALATION

EXPOSURE MAY PRODUCE IRRITATION TO THE NOSE, THROAT, RESPIRATORY TRACT, AND OTHER MUCOUS MEMBRANES. BASED ON THE PRESENCE OF COMPONENT 1 AS A RESULT OF REPEATED OVEREXPOSURES OR EXPOSURE TO A SINGLE LARGE DOSE, CERTAIN INDIVIDUALS MAY DEVELOP LUNG SENSITIZATION (CHEMICAL ASTHMA) TO EPOXIES WHICH WILL CAUSE THEM TO REACT TO A LATER EXPOSURE AT VERY LOW LEVELS. ONCE AN INDIVIDUAL DIAGNOSED AS BEING SENSITIZED, NO FURTHER EXPOSURE CAN BE PERMITTED. THIS LUNG SENSITIZATION MAY BE EITHER TEMPORARY OR PERMANENT.

INGESTION

THIS PRODUCT MAY BE IRRITATING TO THE GASTROINTESTINAL TRACT IF INGESTED.

SIGNS AND SYMPTOMS

SYMPTOMS OF EYE IRRITATION INCLUDE PAIN, TEARING, REDDENING AND SWELLING. SYMPTOMS OF SKIN IRRITATION INCLUDE REDDENING, SWELLING, RASH AND REDNESS. SYMPTOMS OF RESPIRATORY IRRITATION INCLUDE RUNNY NOSE, SORE THROAT, COUGHING, CHEST DISCOMFORT, SHORTNESS OF BREATH AND REDUCED LUNG FUNCTION. SYMPTOMS OF GASTROINTESTIONAL IRRITATION INCLUDE SORE THROAT, ABDOMINAL PAIN, NAUSEA, VOMITING AND DIARRHEA. BASED ON THE PRESENCE OF COMPONENT 1 SKIN SENSITIZATION RESULTS IN ALLERGIC DERMATITIS WHICH MAY INCLUDE RASH, ITCHING, HIVES AND SWELLING OF EXTREMITIES: BASED ON THE PRESENCE OF COMPONENT 1 LUNG SENSITIZATION RESULTS IN ASTHMA-LIKE SYMPTOMS: CHEST TIGHTNESS, SHORTNESS OF BREATH, WHEEZING AND COUGHING. THESE SYMPTOMS MAY BE IMMEDIATE OR DELAYED UP TO SEVERAL HOURS.

AGGRAVATED MEDICAL CONDITIONS

PREEXISTING SKIN, EYE AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT. PERSONS WITH ASTHMATIC-TYPE CONDITIONS, CHRONIC BRONCHITIS, OTHER CHRONIC RESPIRATORY DISEASES, RECURRENT SKIN ECZEMA, SENSITIZATION OR ALLERGIES SHOULD BE EXCLUDED FROM WORKING WITH EPOXIES.

OTHER HEALTH EFFECTS

BASED ON THE PRESENCE OF COMPONENT 2 CHRONIC OVEREXPOSURE TO TiO2 DUST MAY CAUSE SLIGHT LUNG FIBROSIS.

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT

IMMEDIATELY FLUSH EYES WITH WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION IF ANY SYMPTOMS PERSIST.

SKIN CONTACT

REMOVE CONTAMINATED CLOTHING AND SHOES. WIPE EXCESS FROM SKIN AND FLUSH WITH WATER USING SOAP IF AVAILABLE. SEEK MEDICAL ATTENTION IF IRRITATION OCCURS. DO NOT REUSE CLOTHING UNTIL THOROUGHLY DECONTAMINATED. CONTAMINATED LEATHER ARTICLES CANNOT BE DECONTAMINATED AND SHOULD BE DISPOSED.

INHALATION

GROSS OVER EXPOSURE TO NUISANCE PARTICLES MAY CAUSE IRRITATION OF THE RESPIRATORY TRACT.

INGESTION

DILUTE WITH LIQUID UNLESS THE VICTIM IS UNCONSCIOUS OR VERY DROWSY. IF VOMITING SPONTANEOUSLY OCCURS, KEEP THE VICTIM'S HEAD BELOW THE HIPS TO PREVENT ASPIRATION INTO THE LUNGS. CONSULT A PHYSICIAN, HOSPITAL OR POISON CONTROL CENTER AND/OR TRANSPORT TO AN EMERGENCY FACILITY IMMEDIATELY.

MSDS# 033513

SECTION VI — FIRE AND EXPLOSION HAZARDS

flammability classification - OSHA : COMBUSTIBLE LIQUID - CLASS IIIB
- DOT : NOT REGULATED

Flash point : 485 TCC

EXTINGUISHING MEDIA

USE WATER FOG, FOAM, DRY CHEMICAL OR CARBON DIOXIDE.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

CLEAR FIRE AREA OF UNPROTECTED PERSONNEL. DO NOT ENTER CONFINED FIRE SPACE WITHOUT HELMET, FACE SHIELD, BUNKER COAT, GLOVES, RUBBER BOOTS, AND A POSITIVE PRESSURE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS.

UNUSUAL FIRE AND EXPLOSION HAZARDS

CONTAINERS EXPOSED TO INTENSE HEAT FROM FIRES SHOULD BE COOLED WITH WATER TO PREVENT VAPOR PRESSURE BUILDUP WHICH COULD RESULT IN CONTAINER RUPTURE. CONTAINER AREAS EXPOSED TO DIRECT FLAME CONTACT SHOULD BE COOLED WITH LARGE QUANTITIES OF WATER AS NEEDED TO PREVENT WEAKENING OF CONTAINER STRUCTURE.

SECTION VII — REACTIVITY

STABILITY : STABLE — HAZARDOUS POLYMERIZATION : WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID

BASED ON THE PRESENCE OF COMPONENT 1 AVOID AMINES, POLYAMINES, AND POLYAMIDES UNDER UNCONTROLLED CONDITIONS.

HAZARDOUS DECOMPOSITION PRODUCTS

CARBON DIOXIDE, CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED DURING COMBUSTION.

SECTION VIII — EMPLOYEE PROTECTION

RESPIRATORY PROTECTION

USE VENTILATION AS REQUIRED TO CONTROL VAPOR CONCENTRATIONS - AT LEAST 10 AIR CHANGES PER HOUR ARE RECOMMENDED FOR GOOD GENERAL ROOM VENTILATION. IF EXPOSURE EXCEEDS THE PEL/TLV, USE THE APPROPRIATE NIOSH-APPROVED RESPIRATOR.

PROTECTIVE CLOTHING

WEAR SAFTEY GLASSES, GOGGLES, OR A SPLASH SHIELD TO PREVENT EYE CONTACT. CONTACT LENSES SHOULD NOT BE WORN. WEAR APPROPRIATE GLOVES AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND CLOTHING.

ADDITIONAL PROTECTIVE MEASURES

EYE WASH FOUNTAINS AND SAFETY SHOWERS SHOULD BE AVAILABLE FOR USE IN AN EMERGENCY.

SECTION IX — ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES

LARGE SPILLS >> EVACUATE THE HAZARD AREA OF UNPROTECTED PERSONNEL. WEAR APPROPRIATE RESPIRATOR AND PROTECTIVE CLOTHING. SHUT OFF SOURCE OF LEAK ONLY IF SAFE TO DO SO. DIKE AND CONTAIN. IF VAPOR CLOUD FORMS, WATER FOG MAY BE USED TO SUPPRESS; CONTAIN RUN-OFF. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS. SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL; PLACE IN NON-LEAKING CONTAINERS FOR PROPER DISPOSAL. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE; DISPOSE OF FLUSH SOLUTIONS AS ABOVE. SMALL SPILLS >> TAKE UP WITH AN ABSORBENT MATERIAL AND PLACE IN NON-LEAKING CONTAINERS; SEAL TIGHTLY FOR PROPER DISPOSAL.

WASTE DISPOSAL

OBSERVE ALL FEDERAL, STATE, AND LOCAL REGULATIONS REGARDING PROPER DISPOSAL.

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SECTION X — ADDITIONAL PRECAUTIONS

CONTAINERS CAN CONTAIN HAZARDOUS PRODUCT RESIDUES EVEN WHEN EMPTY. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES.

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, WE MAKE NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THIS DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. WE ASSUME NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

MSDS# 033513

MATERIAL SAFETY DATA SHEET
COATINGS AND RESINS GROUP

SECTION I - PRODUCT INFORMATION

MANUFACTURER'S NAME: PPG INDUSTRIES, INC.
PRODUCT CODE/IDENTITY: 97-57 (112586E)
CUSTOMER PART#/NAME:
PRODUCT TRADE NAME: CLEAR EPOXY FLOOR SEALER
CHEMICAL FAMILY: POLYAMIDE

* *

SHIPPING INFORMATION

US-DOT: SHIPPING NAME: PAINT, FLAMMABLE LIQUID
HAZARD CLASS:
UN NUMBER: UN1263

ICAO: NAME: UNAVAILABLE
HAZARD LABEL: UNAVAILABLE

INTERNATIONAL: SHIPPING NAME: UNAVAILABLE
HAZARD CLASS: UNAVAILABLE

* *

SARA 311/312 CATEGORIES FOR THIS PRODUCT
ACUTE=Y CHRONIC=Y FLAM=Y PRESS=N REAC=N

* *

ALL CHEMICAL SUBSTANCES IN THIS PRODUCT COMPLY WITH ALL APPLICABLE RULES OR ORDERS UNDER THE ENVIRONMENTAL PROTECTION AGENCY'S TOXIC SUBSTANCES CONTROL ACT.

* *

PRODUCT SAFETY INFO: 260 KAPPA DRIVE
PITTSBURGH, PA 15238
(412) 963-5822

EMERGENCY MEDICAL INFO: (304) 843-1300
EMERGENCY SPILL INFO: (304) 843-1300
DATE OF MSDS PREPARATION: 6/09/89

* *

THIS MATERIAL SAFETY DATA SHEET HAS BEEN PREPARED IN ACCORDANCE WITH THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200), CANADA'S WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM, THE SUPPLIER NOTIFICATION REQUIREMENTS OF SARA TITLE III, SECTION 313, AND OTHER APPLICABLE RIGHT-TO-KNOW REGULATIONS. ABBREVIATIONS AND OTHER DESIGNATIONS USED ON THIS MATERIAL SAFETY DATA SHEET INCLUDE THE FOLLOWING:

U/I = UNKNOWN INFORMATION; N/A = NOT APPLICABLE; NOT ESTAB. = NOT ESTABLISHED; CERT. LTR. = CHEMICAL O.K. ON TSCA INVENTORY; CAS NO. NOT AVAILABLE

BAJ0608891 (CUSTOMER NO.) LOCATION : 9809 8997/57//////609

SECTION II - INGREDIENTS

INGREDIENTS	% WEIGHT	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL-STEL	PPG-IPEL IPEL-TWA	PPG-IPEL IPEL-STEL	SARA TITLE III & CERCLA RATING: NS (102)	EHS (302)	TC+ (313)	RQ (LBS)	TPQ (LBS)	SARA 311/312 AC	CH	FL	PR	RE
ENE (1330-20-7)... ACUTE: SKIN IRRITANT	25-30	100 ppm	150 ppm ORAL= 4.30	100 ppm DERM=U/I	NOT ESTAB INHL= 21.71	100 ppm	150 ppm CHRONIC: NO LONG-TERM EFFECTS IDENTIFIED	Y	N	Y	1000	N/A	Y	N	Y	N	N
10.UENE ...(108-88-3)... ACUTE: SKIN IRRITANT	10-15	100 ppm	150 ppm ORAL= 5.00	200 ppm DERM= 14.00	300 ppm INHL=U/I	100 ppm	150 ppm CHRONIC: NO LONG-TERM EFFECTS IDENTIFIED	Y	N	Y	1000	N/A	Y	N	Y	N	N
I:OPROPYL ALCOHOL, ANHYDROUS ...(67-63-0)... ACUTE: EYE IRRITANT	10-15	400 ppm	500 ppm ORAL= 5.84	400 ppm DERM= 16.00	NOT ESTAB INHL=U/I	400 ppm	500 ppm CHRONIC: NO LONG-TERM EFFECTS IDENTIFIED	N	N	Y	N/A	N/A	Y	N	Y	N	N
ETHYLENE GLYCOL MONOPROPYL ETHER (2807-30-9)... ACUTE: EYE IRRITANT	10-15	NOT ESTAB.	NOT ESTAB. ORAL= .50	NOT ESTAB. DERM= .87	NOT ESTAB. INHL= 6.52	NOT ESTAB.	NOT ESTAB. CHRONIC: LIVER/KIDNEY/BLOOD/BONE MARROW/ TOXIN	N	N	Y	N/A	N/A	Y	Y	Y	N	N
FILM FORMERS, RESINS, AND ADDITIVES ...(NOT ESTAB.)... ACUTE: SKIN IRRITANT	30-35	NOT ESTAB.	NOT ESTAB. ORAL=U/I	NOT ESTAB. DERM=U/I	NOT ESTAB. INHL=U/I	NOT ESTAB.	NOT ESTAB. CHRONIC: NO LONG-TERM EFFECTS IDENTIFIED	N	N	N	N/A	N/A	Y	N	N	N	N

ORAL= LD50 ORAL (RAT), (g/kg) DERM= LD50 DERMAL (RABBIT), (g/kg) INHL= LC50 INHALATION (RAT), (MG/L)
+ INGREDIENTS IN THE TC COLUMN ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III. SEE 40 CFR PART 372.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

[FORMULA VALUES, NOT SALES SPECIFICATIONS]

BOILING RANGE: 82 - 153 DEG. C
VAPOR PRESSURE: 13.9mmHg
VAPOR DENSITY: HEAVIER THAN AIR
% VOL/VOLUME: 70.80
EVAP RATE(BuOAc=100): 123
SOLUBILITY IN WATER: 24.2%
WT/GAL (LBS): 7.55 (U.S.)
pH: U/I
% SOLID BY WEIGHT: 32.67
SPECIFIC GRAVITY: .91
ODOR/APPEARANCE: VISCOUS LIQUID WITH AN ODOR CHARACTERISTIC OF THE SOLVENTS LISTED IN SECTION II.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

US-DOT CATEGORY: FLAMMABLE
FLASHPOINT: 59 DEG. F PMCC FLAMMABLE LIMITS: LEL 1.4 UEL U/I

EXTINGUISHING MEDIA:

USE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CLASS B EXTINGUISHERS (CARBON DIOXIDE, DRY CHEMICAL, OR UNIVERSAL AQUEOUS FILM FORMING FOAM) DESIGNED TO EXTINGUISH NFPA CLASS IB FLAMMABLE LIQUID FIRES.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

KEEP CONTAINERS TIGHTLY CLOSED. ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS, AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. DO NOT APPLY ON HOT SURFACES. TOXIC GASES MAY FORM WHEN PRODUCT IS CONTACTED BY FLAME OR HOT SURFACES.

SPECIAL FIRE FIGHTING PROCEDURES:

WATER SPRAY MAY BE INEFFECTIVE. WATER SPRAY MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTOIGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. FIRE-FIGHTERS SHOULD WEAR SELF CONTAINED BREATHING APPARATUS.

SECTION V - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: NOT EXPECTED TO OCCUR

INCOMPATIBILITY (MATERIALS AND CONDITIONS TO AVOID):

AVOID CONTACT WITH STRONG ALKALIES, STRONG MINERAL ACIDS, OR STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS:

MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS WHEN HEATED. WELDING, BRAZING, OR FLAME-CUTTING ON SURFACES COATED WITH THIS PRODUCT MAY PRODUCE FUMES INCLUDING:
Carbon Monoxide, Oxides of Nitrogen

SECTION VI - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

PROVIDE MAXIMUM VENTILATION. ONLY PERSONNEL EQUIPPED WITH PROPER RESPIRATORY AND SKIN AND EYE PROTECTION SHOULD BE PERMITTED IN THE AREA. REMOVE ALL SOURCES OF IGNITION. TAKE UP SPILLED MATERIAL WITH SAWDUST, VERMICULITE, OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR DISPOSAL.

WASTE DISPOSAL METHOD:

WASTE MATERIAL MUST BE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, PROVINCIAL, AND LOCAL ENVIRONMENTAL CONTROL REGULATIONS. EMPTY CONTAINERS SHOULD BE RECYCLED OR DISPOSED OF THROUGH AN APPROVED WASTE MANAGEMENT FACILITY.

SECTION VII - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE FROM:

INGESTION:
-HARMFUL OR FATAL IF SWALLOWED.

EYE CONTACT:
-CAUSES SEVERE EYE IRRITATION.

SKIN CONTACT:
-MAY CAUSE MODERATE SKIN IRRITATION.
-MAY BE ABSORBED THROUGH THE SKIN.

INHALATION:
-VAPOR AND SPRAY MIST HARMFUL IF INHALED.
-VAPOR IRRITATES EYES, NOSE, AND THROAT.
-REPEATED EXPOSURE TO HIGH VAPOR CONCENTRATIONS MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM AND PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE.
-INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL OR FATAL.

CHRONIC OVEREXPOSURE:
AVOID LONG TERM AND REPEATED CONTACT.
-THIS PRODUCT CONTAINS AN ETHYLENE-SERIES GLYCOL ETHER AND/OR ACETATE WHICH HAS BEEN SHOWN TO CAUSE DAMAGE TO THE KIDNEYS, LIVER, BLOOD AND/OR BLOOD-FORMING TISSUES. THE ETHYL AND METHYL DERIVATIVES HAVE CAUSED BIRTH DEFECTS AND REPRODUCTIVE ORGAN DAMAGE IN LABORATORY ANIMALS. THERE IS NO EVIDENCE OF THESE EFFECT

SIGNS AND SYMPTOMS OF OVEREXPOSURE:

CONTINUED ON PAGE 4

-EYE WATERING, HEADACHES, NAUSEA, DIZZINESS, AND LOSS OF COORDINATION ARE INDICATIONS THAT SOLVENT LEVELS ARE TOO HIGH.
-REDNESS, ITCHING, BURNING SENSATION AND VISUAL DISTURBANCES MAY INDICATE EXCESSIVE EYE CONTACT.
-DRYNESS, ITCHING, CRACKING, BURNING, REDNESS, AND SWELLING ARE CONDITIONS ASSOCIATED WITH EXCESSIVE SKIN CONTACT.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: NOT APPLICABLE

SECTION VIII - FIRST AID PROCEDURES

INGESTION:
IF SWALLOWED, DO NOT INDUCE VOMITING.

EYE CONTACT:
IN CASE OF EYE CONTACT, FLUSH EYES IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

SKIN CONTACT:
IN CASE OF SKIN CONTACT, REMOVE PROMPTLY BY WIPING, FOLLOWED BY WATERLESS HAND CLEANER AND SOAP AND WATER.

INHALATION:
IF AFFECTED BY INHALATION OF VAPOR OR SPRAY MIST, REMOVE TO FRESH AIR. APPLY ARTIFICIAL RESPIRATION AND OTHER SUPPORTIVE MEASURES AS REQUIRED.

OTHER:
IF ANY OF THE FOLLOWING OCCUR DURING OR FOLLOWING USE OF THIS PRODUCT, CONTACT A POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN IMMEDIATELY; HAVE MATERIAL SAFETY DATA SHEET INFORMATION AVAILABLE. *INGESTION *EXCESSIVE EXPOSURE TO A CORROSIVE MATERIAL.
* PERSISTENT SKIN/EYE IRRITATION OR BREATHING DIFFICULTIES.

SECTION IX - PROTECTION INFORMATION

PERSONAL PROTECTIVE EQUIPMENT FOR:

EYE PROTECTION:
WEAR CHEMICAL-TYPE SPLASH GOGGLES OR FULL FACE SHIELD.

SKIN PROTECTION:
WEAR PROTECTIVE CLOTHING, INCLUDING IMPERMEABLE APRON AND GLOVES CONSTRUCTED OF:
NITRILE RUBBER, NEOPRENE RUBBER OR POLYVINYL ALCOHOL

RESPIRATORY PROTECTION:
OVEREXPOSURE TO VAPORS MAY BE PREVENTED BY ENSURING VENTILATION CONTROLS, VAPOR EXHAUST OR FRESH AIR ENTRY. NIOSH/MSHA-APPROVED (TC-23C-) PAINT SPRAY OR AIR SUPPLIED (TC-19C-) RESPIRATORS MAY ALSO REDUCE EXPOSURE. READ RESPIRATOR MANUFACTURER'S INSTRUCTIONS AND LITERATURE CAREFULLY TO DETERMINE THE TYPE OF AIRBORNE CONTAMINANTS AGAINST WHICH THE RESPIRATOR IS EFFECTIVE AND HOW IT IS TO BE PROPERLY FITTED.

OTHER EQUIPMENT:
CLEAN OR DISCARD CONTAMINATED CLOTHING AND SHOES.

VENTILATION REQUIREMENTS:
PROVIDE GENERAL DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP THE CONCENTRATION OF INGREDIENTS LISTED IN SECTION II BELOW THE LOWEST SUGGESTED EXPOSURE LIMITS, THE LEL IN SECTION IV BELOW THE STATED LIMIT, AND TO REMOVE DECOMPOSITION PRODUCTS DURING WELDING OR FLAME CUTTING ON SURFACES COATED WITH THIS PRODUCT.

SECTION X - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS:
DO NOT STORE ABOVE 120 DEGREES F. STORE LARGE QUANTITIES IN BUILDINGS DESIGNED AND PROTECTED FOR STORAGE OF NFPA CLASS IB FLAMMABLE LIQUIDS.

OTHER PRECAUTIONS:
IF THIS MATERIAL IS PART OF A MULTIPLE COMPONENT COATING SYSTEM, READ THE MATERIAL SAFETY DATA SHEET(S) FOR THE OTHER COMPONENT OR COMPONENTS BEFORE BLENDING AS THE RESULTING MIXTURE MAY HAVE THE HAZARDS OF ALL OF ITS PARTS.
CONTAINERS SHOULD BE GROUNDED WHEN POURING. AVOID FREE FALL OF LIQUIDS IN EXCESS OF A FEW INCHES.

MATERIAL SAFETY DATA SHEET
COATINGS AND RESINS GROUP

SECTION I - PRODUCT INFORMATION

MANUFACTURER'S NAME: PPG INDUSTRIES, INC.
PRODUCT CODE/IDENTITY: 97-98 (080388E)
CUSTOMER PART#/NAME:
PRODUCT TRADE NAME: AQUAPON CLEAR - COMP. B
CHEMICAL FAMILY: EPOXY

* *

SHIPPING INFORMATION

US-DOT: SHIPPING NAME: PAINT, FLAMMABLE LIQUID
HAZARD CLASS:
UN NUMBER: UN1263

ICAO: NAME: UNAVAILABLE
HAZARD LABEL: UNAVAILABLE

INTERNATIONAL: SHIPPING NAME: UNAVAILABLE
HAZARD CLASS: UNAVAILABLE

* *

SARA 311/312 CATEGORIES FOR THIS PRODUCT

ACUTE=Y CHRONIC=Y FLAM=Y PRESS=N REAC=N

* *

ALL CHEMICAL SUBSTANCES IN THIS PRODUCT COMPLY WITH ALL APPLICABLE RULES OR ORDERS UNDER THE ENVIRONMENTAL PROTECTION AGENCY'S TOXIC SUBSTANCES CONTROL ACT.

* *

PRODUCT SAFETY INFO: 260 KAPPA DRIVE
PITTSBURGH, PA 15238
(412) 963-5822

EMERGENCY MEDICAL INFO: (304) 843-1300
EMERGENCY SPILL INFO: (304) 843-1300
DATE OF MSDS PREPARATION: 6/09/89

* *

THIS MATERIAL SAFETY DATA SHEET HAS BEEN PREPARED IN ACCORDANCE WITH THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200), CANADA'S WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM, THE SUPPLIER NOTIFICATION REQUIREMENTS OF SARA TITLE III, SECTION 313, AND OTHER APPLICABLE RIGHT-TO-KNOW REGULATIONS. ABBREVIATIONS AND OTHER DESIGNATIONS USED ON THIS MATERIAL SAFETY DATA SHEET INCLUDE THE FOLLOWING:

U/I = UNKNOWN INFORMATION; N/A = NOT APPLICABLE; NOT ESTAB. = NOT ESTABLISHED; CERT. LTR. = CHEMICAL O.K. ON TSCA INVENTORY; CAS NO. NOT AVAILABLE

BAJ0608891 (CUSTOMER NO.) LOCATION : 9809 8997/98//////609

SECTION II - INGREDIENTS

INGREDIENTS	% WEIGHT	OCCUPATIONAL EXPOSURE LIMITS: ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL-STEL	PPG-IPEL-TWA	PPG-IPEL-STEL	SARA TITLE III & CERCLA RATING: NS (102)	EHS (302)	TC* (313)	RQ (LBS)	TPQ (LBS)	SARA 311/312 AC	CH	FI	PR	RE
XYLENE ...[1330-20-7]... ACUTE: SKIN IRRITANT	25-30	100 ppm	150 ppm ORAL= 4.30	100 ppm DERM=U/I	NOT ESTAB INHL= 21.71	100 ppm	150 ppm CHRONIC: NO LONG-TERM EFFECTS IDENTIFIED	Y	N	Y	1000	N/A	Y	N	Y	N	N
ETHYLENE GLYCOL MONOPROPYL ETHER ...[2807-30-9]... ACUTE: EYE IRRITANT	5-10	NOT ESTAB.	NOT ESTAB. ORAL= .50	NOT ESTAB. DERM= .87	NOT ESTAB. INHL= 6.52	NOT ESTAB.	NOT ESTAB. CHRONIC: LIVER/KIDNEY/BLOOD/BONE MARROW/ TOXIN	N	N	Y	N/A	N/A	Y	Y	Y	N	N
TOLUENE ...[108-88-3]... ACUTE: SKIN IRRITANT	5-10	100 ppm	150 ppm ORAL= 5.00	200 ppm DERM= 14.00	300 ppm INHL=U/I	100 ppm	150 ppm CHRONIC: NO LONG-TERM EFFECTS IDENTIFIED	Y	N	Y	1000	N/A	Y	N	Y	N	N
1-METHOXY-2-PROPANOL ...[107-98-2]... ACUTE: NO SEVERE HAZARDS IDENTIFIED	10-15	100 ppm	150 ppm ORAL= 5.20	NOT ESTAB DERM= 13.00	NOT ESTAB INHL= 55.28	100 ppm	150 ppm CHRONIC: NO LONG-TERM EFFECTS IDENTIFIED	N	N	N	N/A	N/A	Y	N	Y	N	N
FILM FORMERS, RESINS, AND ADDITIVES ...[NOT ESTAB.]... ACUTE: SKIN SENSITIZER	45-50	NOT ESTAB.	NOT ESTAB. ORAL=U/I	NOT ESTAB. DERM=U/I	NOT ESTAB. INHL=U/I	NOT ESTAB.	NOT ESTAB. CHRONIC: NO LONG-TERM EFFECTS IDENTIFIED	N	N	N	N/A	N/A	Y	N	N	N	N

ORAL= LD50 ORAL (RAT), (g/kg) DERM= LD50 DERMAL (RABBIT), (g/kg) INHL= LC50 INHALATION (RAT), (Mg/L)
* INGREDIENTS IN THE TC COLUMN ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III. SEE 40 CFR PART 372.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

(FORMULA VALUES, NOT SALES SPECIFICATIONS)

BOILING RANGE: 110 - 153 DEG. C
VAPOR PRESSURE: 8.3mmHg
VAPOR DENSITY: HEAVIER THAN AIR
% VOL/VOLUME: 59.60
EVAP RATE(BuOAc=100): 89
SOLUBILITY IN WATER: 18.0%
WT/GAL (LBS): 8.43 (U.S.)
pH: U/I
% SOLID BY WEIGHT: 47.95
SPECIFIC GRAVITY: 1.01
ODOR/APPEARANCE: VISCOUS LIQUID WITH AN ODOR CHARACTERISTIC OF THE SOLVENTS LISTED IN SECTION II.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

US-DOT CATEGORY: FLAMMABLE
FLASHPOINT: 57 DEG. F PMCC FLAMMABLE LIMITS: LEL 1.3 UEL U/I

EXTINGUISHING MEDIA:

USE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CLASS B EXTINGUISHERS (CARBON DIOXIDE, DRY CHEMICAL, OR UNIVERSAL AQUEOUS FILM FORMING FOAM) DESIGNED TO EXTINGUISH NFPA CLASS IB FLAMMABLE LIQUID FIRES.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

KEEP CONTAINERS TIGHTLY CLOSED. ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS, AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. DO NOT APPLY ON HOT SURFACES. TOXIC GASES MAY FORM WHEN PRODUCT IS CONTACTED BY FLAME OR HOT SURFACES.

SPECIAL FIRE FIGHTING PROCEDURES:

WATER SPRAY MAY BE INEFFECTIVE. WATER SPRAY MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTOIGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. FIRE-FIGHTERS SHOULD WEAR SELF CONTAINED BREATHING APPARATUS.

SECTION V - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: NOT EXPECTED TO OCCUR

INCOMPATIBILITY (MATERIALS AND CONDITIONS TO AVOID):

AVOID CONTACT WITH STRONG ALKALIES, STRONG MINERAL ACIDS, OR STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION PRODUCTS:

MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS WHEN HEATED. WELDING, BRAZING, OR FLAME-CUTTING ON SURFACES COATED WITH THIS PRODUCT MAY PRODUCE FUMES INCLUDING:
Carbon Monoxide,

SECTION VI - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

PROVIDE MAXIMUM VENTILATION. ONLY PERSONNEL EQUIPPED WITH PROPER RESPIRATORY AND SKIN AND EYE PROTECTION SHOULD BE PERMITTED IN THE AREA. REMOVE ALL SOURCES OF IGNITION. TAKE UP SPILLED MATERIAL WITH SAWDUST, VERMICULITE, OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR DISPOSAL.

WASTE DISPOSAL METHOD:

WASTE MATERIAL MUST BE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, PROVINCIAL, AND LOCAL ENVIRONMENTAL CONTROL REGULATIONS. EMPTY CONTAINERS SHOULD BE RECYCLED OR DISPOSED OF THROUGH AN APPROVED WASTE MANAGEMENT FACILITY.

SECTION VII - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE FROM:

INGESTION:
-HARMFUL OR FATAL IF SWALLOWED.

EYE CONTACT:
-CAUSES SEVERE EYE IRRITATION.

SKIN CONTACT:
-MAY CAUSE MODERATE SKIN IRRITATION.
-MAY BE ABSORBED THROUGH THE SKIN.
-PROLONGED OR REPEATED CONTACT MAY CAUSE AN ALLERGIC SKIN REACTION.

INHALATION:
-VAPOR AND SPRAY MIST HARMFUL IF INHALED.
-VAPOR IRRITATES EYES, NOSE, AND THROAT.
-REPEATED EXPOSURE TO HIGH VAPOR CONCENTRATIONS MAY CAUSE IRRITATION OF THE RESPIRATORY SYSTEM AND PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE.
-INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS CAN BE HARMFUL OR FATAL.

CHRONIC OVEREXPOSURE:
AVOID LONG TERM AND REPEATED CONTACT.
-THIS PRODUCT CONTAINS AN ETHYLENE-SERIES GLYCOL ETHER AND/OR ACETATE WHICH HAS BEEN SHOWN TO CAUSE DAMAGE TO THE KIDNEYS, LIVER, BLOOD AND/OR BLOOD-FORMING TISSUES. THE ETHYL AND METHYL DERIVATIVES HAVE CAUSED BIRTH DEFECTS AND REPRODUCTIVE ORGAN DAMAGE IN LABORATORY

CONTINUED ON PAGE 4

ANIMALS. THERE IS NO EVIDENCE OF THESE EFFECTS IN HUMANS.

SIGNS AND SYMPTOMS OF OVEREXPOSURE:

-EYE WATERING, HEADACHES, NAUSEA, DIZZINESS, AND LOSS OF COORDINATION ARE INDICATIONS THAT SOLVENT LEVELS ARE TOO HIGH.

-REDNESS, ITCHING, BURNING SENSATION AND VISUAL DISTURBANCES MAY INDICATE EXCESSIVE EYE CONTACT.

-DRYNESS, ITCHING, CRACKING, BURNING, REDNESS, AND SWELLING ARE CONDITIONS ASSOCIATED WITH EXCESSIVE SKIN CONTACT.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: NOT APPLICABLE

SECTION VIII - FIRST AID PROCEDURES

INGESTION:

IF SWALLOWED, DO NOT INDUCE VOMITING.

EYE CONTACT:

IN CASE OF EYE CONTACT, FLUSH EYES IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

SKIN CONTACT:

IN CASE OF SKIN CONTACT, REMOVE PROMPTLY BY WIPING, FOLLOWED BY WATERLESS HAND CLEANER AND SOAP AND WATER.

INHALATION:

IF AFFECTED BY INHALATION OF VAPOR OR SPRAY MIST, REMOVE TO FRESH AIR. APPLY ARTIFICIAL RESPIRATION AND OTHER SUPPORTIVE MEASURES AS REQUIRED.

OTHER:

IF ANY OF THE FOLLOWING OCCUR DURING OR FOLLOWING USE OF THIS PRODUCT, CONTACT A POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN IMMEDIATELY; HAVE MATERIAL SAFETY DATA SHEET INFORMATION AVAILABLE. *INGESTION *EXCESSIVE EXPOSURE TO A CORROSIVE MATERIAL.
* PERSISTENT SKIN/EYE IRRITATION OR BREATHING DIFFICULTIES.

SECTION IX - PROTECTION INFORMATION

PERSONAL PROTECTIVE EQUIPMENT FOR:

EYE PROTECTION:

WEAR CHEMICAL-TYPE SPLASH GOGGLES OR FULL FACE SHIELD.

SKIN PROTECTION:

WEAR PROTECTIVE CLOTHING, INCLUDING IMPERMEABLE APRON AND GLOVES CONSTRUCTED OF:
POLYVINYL ALCOHOL, NEOPRENE RUBBER, NITRILE RUBBERBUTYL RUBBER OR LATEX RUBBER

RESPIRATORY PROTECTION:

OVEREXPOSURE TO VAPORS MAY BE PREVENTED BY ENSURING VENTILATION CONTROLS, VAPOR EXHAUST OR FRESH AIR ENTRY. NIOSH/MSHA-APPROVED (TC-23C-) PAINT SPRAY OR AIR SUPPLIED (TC-19C-) RESPIRATORS MAY ALSO REDUCE EXPOSURE. READ RESPIRATOR MANUFACTURER'S INSTRUCTIONS AND LITERATURE CAREFULLY TO DETERMINE THE TYPE OF AIRBORNE CONTAMINANTS AGAINST WHICH THE RESPIRATOR IS EFFECTIVE AND HOW IT IS TO BE PROPERLY FITTED.

OTHER EQUIPMENT:

CLEAN OR DISCARD CONTAMINATED CLOTHING AND SHOES.

VENTILATION REQUIREMENTS:

PROVIDE GENERAL DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP THE CONCENTRATION OF INGREDIENTS LISTED IN SECTION II BELOW THE LOWEST SUGGESTED EXPOSURE LIMITS, THE LEL IN SECTION IV BELOW THE STATED LIMIT, AND TO REMOVE DECOMPOSITION PRODUCTS DURING WELDING OR FLAME CUTTING ON SURFACES COATED WITH THIS PRODUCT.

SECTION X - SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS:

DO NOT STORE ABOVE 120 DEGREES F. STORE LARGE QUANTITIES IN BUILDINGS DESIGNED AND PROTECTED FOR STORAGE OF NFPA CLASS IB FLAMMABLE LIQUIDS.

OTHER PRECAUTIONS:

IF THIS MATERIAL IS PART OF A MULTIPLE COMPONENT COATING SYSTEM, READ THE MATERIAL SAFETY DATA SHEET(S) FOR THE OTHER COMPONENT OR COMPONENTS BEFORE BLENDING AS THE RESULTING MIXTURE MAY HAVE THE HAZARDS OF ALL OF ITS PARTS.

CONTAINERS SHOULD BE GROUNDED WHEN POURING. AVOID FREE FALL OF LIQUIDS IN EXCESS OF A FEW INCHES.

AQUAPON PERFORMANCE DATA

PPG Industries Manufacturer's Data

24-HOUR CHEMICAL SPOT TESTS ON AQUAPON EPOXY COATINGS

Chemical name	Formula	Results[a]
Ferric nitrate	$Fe(NO_3)_3$	Dis
Sodium hypocarbonate	$NaHCO_3$	-
Sodium carbonate	Na_2CO_3	-
10% trisodiumphosphate		-
50% hydrogen peroxide	H_2O_2	Complete
Calcium hypochlorate(?)	$Ca(OCl)_2$	-
Butyl alcohol(?)	BUOH	Soft
Methyl isobutyl ketone	MIBK	SL, Soft
Trichloroethylene	C_2HCl_3	-
Xylene	$C_6H_4(CH_3)_2$	-
Gasoline		-
Cellosolve acetate[b]		-
Iodine		Dis
5% phenol acetate		SL, Soft
Skydrol 500B*		Soft, SW, LG
Machine oil		-

[a] - No effect
Complete Complete failure
Dis Discoloration
LG Loss of gloss
SL Soft
Soft Softening
SW Swelling

[b] Ethylene glycol monoethyl ether acetate

* Skydrol 500B is a trademark of Monsanto Company.

APPENDIX 7A

BUILDING EMERGENCY PLAN - 616 BUILDING

This page intentionally left blank.

This plan covers the 616 Nonradioactive Dangerous Waste Storage Facility.

Approved:

M. D. [signature] — 12-5-94
Building Emergency Director — Date

[signature] — 12-5-94
Emergency Preparedness — Date

[signature] — 12-5-94
Hanford Fire Department — Date

This document will be reviewed annually and updated as required by the Building Emergency Director and approved by the Manager of Emergency Preparedness (or delegate) and the Hanford Fire Department.

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FIGURES

1.0 GENERAL INFORMATION

The 616 Nonradioactive Dangerous Waste Storage Facility (NRDWSF) is located on the Hanford Site, a 560 square mile U.S. Department of Energy (DOE) reservation in southeastern Washington State. The 616 Nonradioactive Dangerous Waste Storage Facility is located in the west portion of the 600 Area near the north end of the Hanford Site.

1.1 FACILITY NAME: U.S. Department of Energy Hanford Site
616 Nonradioactive Dangerous Waste Storage Facility

1.2 FACILITY LOCATION: Benton County, Washington; within the 600 Area.

The facility covered by this plan is the 616 NRDWSF.

1.3 OWNER: U.S. Department of Energy
Richland Operations Office
825 Jadwin Avenue
Richland, Washington 99352

FACILITY MANAGER: Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

1.4 DESCRIPTION OF THE FACILITY AND OPERATIONS

The 616 NRDWSF is designed and used for the receipt and storage of nonradioactive dangerous waste generated on the Hanford Site and for the preparation of shipments to permitted offsite treatment, storage, or disposal facilities. Sampling for waste verification may also be performed. The 616 NRDWSF encompasses an area of approximately 7,700 square feet. To support safe response to potential spills, the 616 NRDWSF features independent collection trenches, sloped floors, and curbing.

1.5 BUILDING EVACUATION ROUTING (BUILDING LAYOUT)

Figure 1 provides identification of emergency evacuation routes from the 616 NRDWSF to the staging area(s).

The primary staging area for the 616 NRDWSF is located 200 feet (61 meters) east of the main entrance. If it becomes necessary to evacuate the primary staging area, the staging area manager or the BED shall direct personnel to an alternate staging area or destination.

2.0 PURPOSE

This plan describes both the facility hazards and the basic responses to upset and/or emergency conditions. "Emergency" as used in this document includes events meeting the Washington Administrative Code (WAC) 173-303 definition of Emergency as well as Department of Energy (DOE) Order 5000.3B categories of Unusual Occurrence and Emergency. These events include spills or releases as a result of processing, fires and explosions, transportation activities, movement of materials, packaging, storage of hazardous materials and natural and security contingencies. When used in conjunction with the "Hanford Facility Contingency Plan," DOE/RL-93-75, this plan meets the requirements for contingency planning as required by WAC 173-303.

3.0 BUILDING EMERGENCY ORGANIZATION

3.1 BUILDING EMERGENCY DIRECTOR

The Building Emergency Director (BED) or his/her designated alternate has overall responsibility for implementing this plan. The BED has the responsibilities of the Emergency Coordinator as discussed in WAC 173-303-360 and is also the Event Commander for facility related events. A list of all BEDs and alternates and their work and home telephone numbers is maintained by Emergency Preparedness. The list is distributed to various people and locations throughout the Hanford Site. The BEDs have the authority to commit all necessary resources (both equipment and personnel) to respond to any emergency. Additional responsibilities have been delegated to Hanford Fire Department personnel who are authorized to act for the BED when the BED is absent. These Hanford Fire Department personnel have the authority to commit all necessary resources (both equipment and personnel) to respond to any emergency.

3.2 OTHER MEMBERS

As a minimum, the BED appoints and trains individuals to perform as Personnel Accountability Aides and Staging Area Managers. The accountability aides are responsible for facilitating the implementation of protective actions (evacuation or take cover) and for facilitating the accountability of personnel after the protective actions have been implemented. Staging Area Managers are responsible for coordinating/conducting activities at the staging area. In addition, the BED may identify additional support personnel (Health Physics [HP], Maintenance, Engineering, Hazardous Material Coordinators, etc.) to be part of the building emergency organization.

The building emergency organization for the 616 NRDWSF is listed in a separate publication found at the facility.

4.0 IMPLEMENTATION OF THE PLAN

To meet the requirements of the WAC, this plan will be considered to be implemented when the BED has determined that a release, fire, or explosion that could threaten human health or the environment (WAC 173-303 Emergency) has occurred at the facility. An incident requiring evacuation of personnel or the summoning of emergency response units will not necessarily indicate that the plan has been implemented. The incident classification process for a WAC 173-303 Emergency is described in DOE/RL-93-75, *Hanford Facility Contingency Plan*.

Under the DOE guidance, this plan will be considered implemented whenever the BED determines that one of the incidents listed in subsection 6.0 has or will occur and that the severity is or will be such that there is a potential to endanger human health or the environment (DOE Unusual Occurrence or Emergency). The 616 NRDWSF will implement this plan through specific implementing procedures. These procedures are referenced where appropriate and a list of the procedures is included as Attachment A.

The BED must assess each incident to determine the response necessary to protect the personnel, facility, and the environment. If assistance from Patrol, Fire, or ambulance units is required, the Hanford Emergency Response Number (911) must be used to contact the Patrol Operations Center and request the desired assistance. To request other resources or assistance from outside the facility, the Patrol Operations Center business number is used (373-3800) to request contact of the Emergency Duty Officer.

5.0 FACILITY HAZARDS

Hazards at the 616 NRDWSF Facility potentially include chemical, ergonomic, and other industrial hazards.

5.1 HAZARDOUS MATERIALS

Hazardous materials used at the 616 NRDWSF may include fuels, pesticides, cleaning products, paint, etc. They are stored as indicated on Figure 1.

5.2 INDUSTRIAL HAZARDS

Hazards associated with industrial accidents include the potential for injuries from drum handling, moving equipment, falls, or exposure to hazardous chemicals.

5.3 HAZARDOUS WASTE

Hazardous wastes at the 616 NRDWSF are specified on Figure 1. Solid Waste Management (SWM) is responsible for maintaining the waste in a compliant manner.

5.4 RADIOACTIVE MATERIALS

Radioactive materials ARE NOT used and/or stored in the 616-NRDWSF.

5.5 CRITICALITY - N/A

6.0 POTENTIAL EMERGENCY CONDITIONS

Potential emergency conditions may fall into one of three basic categories: operational (process upsets, fires and explosions, loss of utilities, spills, and releases), natural phenomena (e.g., earthquakes), and security contingencies (bomb threat, hostage situation, etc.). The following are conditions that may lead to an emergency situation (WAC or DOE defined) at the 616 NRDWSF and require the implementation of this plan.

6.1 OPERATIONAL

6.1.1 Loss of Utilities

1. Loss of Electricity. Hazards associated with a loss of electricity include potential exposure to toxic chemical vapors/particulates due to shutdown of the ventilation system.

2. Loss of Water. Loss of water could disable the wet-pipe sprinkler system, resulting in an increased fire hazard.

3. Loss of Ventilation. Loss of ventilation could result in exposure to toxic chemical vapors/particulates in the event of a hazardous material spill/release.

6.1.2 Major Process Disruption/Loss of Plant Control - N/A

6.1.3 Pressure Release - N/A

6.1.4 Fire and/or Explosion

Fire hazards include exposure to toxic chemicals, smoke inhalation, burns, explosion, and damage to equipment. Sealed containers also could become pressure hazards.

6.1.5 Hazardous Material Spill

Hazardous material storage and control are managed by plant operating procedures (POP) and Material Safety Data Sheets (MSDS), which are located in the 616-NRDWSF Packaging Materials/Handling Equipment Area. Spills or releases could result in the conditions described in the following section.

1. Spill of Hazardous Material. Hazards associated with the spill of a hazardous material include exposure to corrosive and toxic materials or fumes and potential environmental damage.

2. Fires or Explosions Involving Hazardous Material. A fire or explosion in the 616-NRDWSF could produce flying objects and cause the release of hazardous waste to the air or soil.

3. Toxic Fumes Hazards. Hazards associated with toxic fumes include potential exposure to personnel and the environment.

4. Reactive Chemical/Corrosive Material Hazards. Improper segregation of incompatible materials could cause an explosive reaction. Hazards are the same as for spills.

5. Thermal Reactions/Hazards. Thermal reactions could cause burns, chemical burns, and toxic fumes, and cause pressure hazards in sealed containers.

6. Flammable Material/Liquids Hazards. Hazards associated with flammable materials and liquids include fire, explosion, and release of hazardous waste.

7. Asbestos Release. The 616-NRDWSF structure does not contain asbestos, but dangerous waste containing asbestos could be stored inside the drums stored within the structure. Release of friable asbestos waste could result in an inhalation hazard, if present.

6.1.6 Mixed Waste Spill - N/A

6.1.7 Transportation and/or Packaging Incidents

When container integrity is questionable, initial steps may be taken to prevent a release, such as overpacking.

6.1.8 Unusual, Irritating, or Strong Odors

Sampling that includes opening hazardous waste containers may result in the release of airborne chemical hazards, which represent a potential hazard. Call Odor Response (pager 85-8971) for unusual, irritating, or strong odors at 616 Facility.

6.1.9 Radiological Material Release - N/A

6.1.10 Criticality - N/A

6.2 NATURAL PHENOMENA

6.2.1 Seismic Event

Depending on the magnitude of the event, severe structural damage can occur resulting in serious injuries or fatalities and the release of hazardous materials/wastes. Damaged electrical circuits and wiring could result in the initiation of multiple fires.

6.2.2 Volcanic Eruption/Ashfall

Though not expected to cause structural damage, the ash could cause shorts in electrical equipment and plug ventilation system filters.

6.2.3 High Winds/Tornados

High winds or tornados may cause structural damage to systems containing hazardous materials/wastes resulting in a release to the environment.

6.2.4 Flood - N/A

6.2.5 Range Fire

The hazards associated with the range fire include those associated with a building fire plus potential site access restrictions and travel hazards such as poor visibility.

6.2.6 Aircraft Crash

In addition to the potential serious injuries or fatalities, an aircraft crash could result in the direct release of hazardous materials/wastes or cause a fire that could lead to the release.

6.3 SECURITY CONTINGENCIES

6.3.1 Bomb Threat

A bomb threat may be received by anyone who answers the telephone or receives mail. The major effect on the facility is that it will need to perform an emergency shutdown in order to be evacuated. If a bomb explodes, the effects are the same as those discussed under fire and explosion.

6.3.2 Hostage Situation

A hostage situation can pose an emergency situation if there is the potential to adversely impact the facility. This can be as a result of losing facility control (operators removed from their stations) or when the situation results in the coercion of an employee to take some malevolent action.

6.3.3 Suspicious Object

The major effect on the facility is that it will need to perform an emergency shutdown in order to be evacuated.

7.0 INCIDENT RESPONSE

The initial response to any emergency will be to immediately protect the health and safety of persons in the immediate area. Identification of released material is essential to determine appropriate protective actions. Containment, treatment, and disposal assessment will be the secondary responses.

The following sections describe the process for implementing basic protective actions as well as descriptions of response actions for the events listed in subsection 6.0. The Hanford Facility Contingency Plan (DOE/RL-93-75) provides a description of generic incident responses, describes the process for assessing and identifying the hazardous materials and/or dangerous waste, and describes the process for categorizing and classifying an incident.

7.1 PROTECTIVE ACTIONS RESPONSES

7.1.1 Evacuation

The 616-NRDWSF facility personnel must be notified immediately if any conditions that affect occupants or operations are discovered.

If an evacuation is ordered or the evacuation siren sounds, employees should proceed to the:

616 NRDWSF STAGING AREAS	AREA	LOCATION
PRIMARY STAGING AREA	616 Building	200 feet east of main entrance
SECONDARY STAGING AREA	616 Building	Announced by the Building Emergency Director

If it becomes necessary to evacuate the primary staging area, the staging area manager or the BED shall direct personnel to an alternate staging area or destination.

For an area evacuation, the following steps should be conducted concurrently and directed by the building emergency director, if possible. Area evacuations are either rapid or controlled; differences between them are pointed out as follows:

AREA EVACUATION PROCEDURE
Halt any operations or work and place the building in a safe condition. Use emergency shutdown procedures for rapid evacuation.
Use whatever means are available (PA system, bullhorns, runners, etc.) to pass the evacuation information to employees.
Issue the order to evacuate by any available means.
Evacuate personnel to the staging area; group employees as follows: those with potentially contaminated protective clothing, those with keys immediately available for vehicles, those needing rides.
Conduct personnel accountability. Report personnel accountability results to the Northern Area Emergency Control Center (ECC) (373-3876, 373-1786, or 544-8085).
Relay pertinent evacuation information (routes, destination etc.) to drivers.
Dispatch vehicles as soon as the vehicles are loaded.
Report status to the ECC, request additional transportation (provided by taxi dispatcher) if required, and report if any people remain who are performing late shutdown duties.

7.1.2 Take Cover

7.1.2.1 Take Cover Response

When the Take Cover Alarm is activated, personnel should take cover in the nearest building. The following actions should be taken or considered:

- Close all exterior doors and windows
- Report your location to line manager or BED
- If possible, secure (turn off) unnecessary electronic or electrical equipment
- Turn off cell and office area ventilation systems.

7.2 RESPONSE TO OPERATIONAL EMERGENCIES

7.2.1 Loss of Utilities

7.2.1.1 Utility Disconnect Plan For 616 NRDWSF

Use these steps to place the utilities in a safe and secure condition when an emergency has been declared or when directed by the BED.

1. Heating, Ventilation, and Air Conditioning

   a. Inspect all waste storage cells. If any containers are leaking or ruptured, notify management.

   b. After inspecting containers, close all cell doors inside the NRDWSF.

   c. Open all exterior doors.

   d. Evacuate storage areas.

   e. If ventilation loss will be longer than 1 hour, evacuate the building (unless shutdown is part of the take cover alarm response for this facility).

   f. Maintain surveillance of the building to prevent unauthorized personnel entry.

   g. Proceed to roof or main panel marked "Heat Pump" near men's room.

   h. Locate ON/OFF switch.

   i. Place switch in OFF position.

   j. Do not reenter the building until the ventilation system has been reestablished and operating for at least 30 minutes.

2. Electrical

   NOTE: This building should be shut down only in an extreme emergency.

   a. Follow item 1, above, instructions for shutdown of the ventilation system.

   b. Proceed to outside the northeast corner wall or to the hallway near the men's room.

   c. Locate the main electrical distribution panel labeled "Main Switch Transformer."

d. Locate the ON/OFF switch labeled "2 of 2."

e. Place switch in the OFF position.

f. Do not reenter the building until power and ventilation has been restored for at least 30 minutes.

3. Fire Sprinkler System

NOTE: This building should be shut down only in an extreme emergency and preferably by the Hanford Fire Department.

a. Proceed to the outside of the south wall of the 616 Building.
b. Locate the red valve (inside of four red posts).
c. Break the seal with the attached wrench.
d. Turn the valve to the SHUT position.

4. Sanitary Water/Sewer

a. Proceed to women's change room.

b. Locate the main valve on the south wall labeled "Sanitary Water Shutoff."

c. Turn valve until closed.

7.2.1.2 Loss of Electricity

Loss of electricity will result in loss of operation of the building ventilation system.

1. Evacuate the building.

2. Maintain surveillance of the building to prevent unauthorized personnel entry.

3. Notify the BED.

4. If instructed by management, close all cell doors inside the building, and open all exterior doors.

5. Do not reenter the building until the electrical/ventilation systems have been reestablished and have been operating for at least 30 minutes.

7.2.1.3 Loss of Water

1. Notify the BED.
2. Notify the Hanford Fire Department.
3. Establish a fire watch.
4. Notify appropriate maintenance personnel for repair.

7.2.1.4 Loss of Ventilation

Follow the subsection 7.2.1.2 instructions for Loss of Electricity.

7.2.2 Major Process Disruption/Loss of Plant Control - N/A

7.2.3 Pressure Release - N/A

7.2.4 Fire and/or Explosion

In the event of a fire, the discoverer activates a fire alarm and calls 911. Automatic initiation of a fire alarm (through the smoke detectors and sprinkler systems) also is possible. Trained personnel may use portable fire extinguishers for small fires. Personnel will use their best judgment whether to fight a fire or to evacuate. Under no circumstances will personnel remain to fight a fire if unusual hazards exist.

1. On actuation of the fire alarm, personnel shut down equipment, secure waste, and lock up classified documents (or carry the documents with them) ONLY if time permits. The alarm automatically signals the Hanford Fire Department and the Hanford Patrol Operations Center.

2. Personnel leave the area/building by the nearest safe exit and proceed to the designated staging area for accountability unless they are told otherwise.

3. The BED proceeds directly to the scene, obtains all necessary information pertaining to the incident, and meets the Hanford Fire Department or sends a representative to meet them and establish an Event Command Post.

4. The BED informs the site organization as to the extent of the emergency (including estimates of dangerous waste quantities released to the environment).

6. If operations are stopped in response to the fire, the BED ensures that systems are monitored for leaks, pressure buildup, gas generation, and ruptures.

7. Hanford Fire Department fire fighters extinguish the fire.

8. The BED ensures that all emergency equipment is cleaned and fit for its intended use following completion of cleanup procedures.

7.2.5 Hazardous Material, Dangerous Waste Spill

Spills can result from many sources including leaks, container spills or leaks, damaged packages or shipments, or personnel error. These spills normally fall into one of two categories: minor spills or major spills. The response to the two types are discussed below.

7.2.5.1 Response To Minor Spills

Facility personnel generally perform immediate cleanup of minor spills or releases using sorbents and emergency equipment. Personnel detecting such spills or releases contact the BED, who ensures that the Hanford Fire Department, appropriate regulatory support personnel, and Health Physics personnel (if applicable) are notified. Response to minor spills generally does not require the implementation of this plan.

A spill or release of hazardous material or dangerous or mixed waste is considered "minor" if all of the following are true:

- The spill does not threaten the health and safety of occupants of the building, i.e., an evacuation is not necessary
- The spill is small in size
- The composition of the material or waste is known or can be quickly determined from label, manifest, MSDSs, or disposal request information.

If one or more of the foregoing conditions are not met, responses are performed as outlined below.

7.2.5.2 Response To Major Spills

The discover performs the following actions for a major release:

1. Notifies facility personnel (including BED) of discovery of spill or release by sounding the appropriate alarm, using the public address (PA) system, etc.
2. Initiates notifications to the Hanford Fire Department by calling 911, and provides all known information.
3. Takes action to contain and/or to stop the spill or container leak if all of the following are true:
   - The identity of the substance(s) involved is known
   - Appropriate protective equipment and control/cleanup supplies, e.g., absorbents, are readily available

- Discoverer can safely perform the action(s) without assistance, or assistance is readily available from other trained personnel.

If any of the above conditions are not met or there is any doubt, the discoverer evacuates the area and remains outside, upwind of the spill, pending the arrival of the BED. The discoverer remains available for consultation with the BED, Hanford Fire Department, or other emergency response personnel and restricts access to the area until the arrival of the BED.

The BED performs or arranges for the following:

1. Establishes a command post at a safe location, and coordinates further spill mitigation activities.

2. Obtains all available information pertaining to the incident and determines if the incident requires implementation of the contingency plan.

3. Arranges for care of any injured persons.

4. Maintains access control at the incident site by keeping unauthorized personnel and vehicles away from the area. Security personnel can be used to assist in site control if control of the boundary is difficult (e.g., repeated incursions). In determining controlled access areas, considers environmental factors such as wind velocity and direction.

5. Arranges for proper remediation of the incident after evaluation.

6. Remains available for fire, patrol, and other authorities on the scene, and provides all required information

7. Enlists the assistance of alternate BED(s), if response activities are projected to be long term.

8. Ensures the use of proper protective equipment, remedial techniques, transfer procedures, (including ignition source control [e.g., nonsparking tools, grounding containers, isolation of ignition sources, use of explosion-proof electrical equipment, etc.] for flammable or reactive spills), and decontamination procedures by all involved personnel, if remediation is performed by facility personnel.

9. Remains at the scene to oversee activities and to provide information, if remediation is performed by the Hanford Fire Department Hazardous Materials Response Team or other response teams.

10. Ensures proper containerization, packaging, and labeling of recovered spill materials and overpacked containers.

NOTE - Overpacked containers are marked and labeled in the same manner as the contents. All containers of spill debris, recovered product, etc., are managed in the same manner as waste containers. Overpacks in use are marked with information pertaining to their contents and noted as to whether the container inside the overpack is leaking or is in good condition.

11. If operations are stopped in response to the release, ensures that systems are monitored for leaks, pressure buildup, gas generation, and ruptures.

12. Ensures decontamination (or restocking) and restoration of emergency equipment used in the spill remediation before resuming operations

13. Provides required reports after the incident, in accordance with DOE/RL-93-75.

7.2.5.3 Transportation Incidents

The discoverer may also take the following actions for leaks or spills resulting from a hazardous materials/wastes transportation incident if the actions can be performed without jeopardizing personnel safety, as appropriate.

- Determines the nature of incident
  - Personnel injuries
  - Hazardous material/waste spill with fire
  - Hazardous material/waste spill without fire.
- Assists injured personnel.
- Initiates notifications to the single point-of-contact by any means available (telephone, radio, passing motorist, etc.) to request assistance from the Hanford Fire Department (Emergency Coordinator/Event Commander for these type of events), Hanford Patrol, and medical personnel.
- Remains in a safe location and attempts to isolate the area to prevent inadvertent personnel access.

7.2.5.4 Receipt of Damaged or Unacceptable Shipments

When a damaged shipment of hazardous material or dangerous waste arrives at the 616 NRDWSF and the shipment is unacceptable for receipt, the damaged shipment should not be moved. Personnel instead perform the following steps.

1. If the release from damaged package is a "minor" spill under the criteria of subsection 7.2.5.1, the following actions are performed.

   a. Notify the BED, the Hanford Fire Department, and the single point-of-contact to advise of the situation. The BED responds and assists in the evaluation of, and response to, the incident.

   b. Notify the generating unit of the damaged shipment, and request any information necessary to assist in responding to the "minor" spill.

   c. Proceed with remedial action, including overpacking damaged containers, cleanup of spilled material, or other necessary actions to contain the spill.

2. Implement subsection 7.2.5.2 if the release does not meet the criteria of a "minor" spill as noted previously, or the extent of the spill cannot be determined.

7.2.6 Unusual, Irritating, or Strong Odors

If an unusual, irritating, or strong odor is detected and the discoverer believes that the odor might be the result of an uncontrolled release of a toxic or dangerous material, the discoverer performs the following:

- Activates the building evacuation alarm or fire alarm system to evacuate the building
- Notifies the BED.

If the discoverer knows of the source and scope of the release, this information is reported quickly to the BED. Measures are taken to contain the release as described in subsection 7.2.5 and ventilate the area, if safe and advisable to do so.

If an unusual odor is detected within the building or structure and the source of the odor is unknown, notify Odor Response (pager 85-8971).

7.2.7 Radiological Material Release - N/A

7.2.8 Criticality - N/A

7.3 PREVENTION OF RECURRENCE OR SPREAD OF FIRES, EXPLOSIONS, OR RELEASES

The BED, in coordination with emergency response organizations, takes the steps necessary to ensure that a secondary release, fire, or explosion does not occur. The following actions are taken:

1. Isolates the area of the initial incident by shutting off power, closing off ventilation systems, etc., to minimize the spread of a release and/or the potential for a fire or explosion.

2. Inspects containment for leaks, cracks, or other damage.

3. Inspects for toxic vapor generation.

4. Removes released material and waste remaining inside of containment structures as soon as possible.

5. Contains and isolates residual waste material using dikes and adsorbents.

6. Covers or otherwise stabilizes areas where residual released materials remain to prevent migration or spread from wind or precipitation runoff.

7. Installs new structures, systems, or equipment to enable better management of hazardous materials or dangerous waste.

8. Reactivates adjacent operations in affected areas only after cleanup of residual waste materials is achieved.

7.4 RESPONSE TO NATURAL PHENOMENA

7.4.1 Seismic Event

The WHC emergency response organization's primary role in a seismic event is coordinating the initial response to injuries, fires, and fire hazards and acting to contain or control hazardous material/waste releases.

Individuals should remain calm and stay away from windows, steam lines, and hazardous material/waste storage locations. Once the shaking has subsided, individuals should evacuate carefully and assist those needing help. The location of any trapped individuals is reported to the BED or is reported to 911.

The BED takes whatever actions are necessary to minimize damage and personnel injuries. Actions include:

1. Coordinating searches for personnel and potential hazardous conditions (fires, spills, etc.)

2. Conducting accountability

3. Securing utilities and facility operations.

4. Arranging rescue efforts, and notifying 911 for assistance.

5. Assembling damage assessment teams.

6. Determining if hazardous materials were released.

7. Determining current local meteorological conditions.

8. Warning other facilities and implement protective actions if release of hazardous materials poses a danger.

9. Providing personnel and resource assistance to other facilities, if required and possible.

7.4.2 Volcanic Eruption/Ashfall

When notified of an impending ashfall, the BED will implement measures to minimize the impact of the ashfall, such as:

1. Installing filter media over building ventilation intakes.

2. Installing filter media or protective coverings on outdoor equipment that may be adversely affected by the ash (diesel generators, equipment rooms etc.).

3. Shutting down some or all operations and processes.

4. Sealing secondary use exterior doors.

5. Releasing all but essential personnel to go home.

If as a result of the ashfall other emergency conditions arise (e.g., fires due to electrical shorts or lightning), response is as described in other paragraphs of this section.

7.4.3 High Winds/Tornados

Upon notification of impending high winds, the BED takes steps necessary to secure all outdoor waste and hazardous material/waste containers and storage locations. All doors and windows are shut, and personnel are warned to use extreme caution when entering or exiting the building.

7.4.4 Flood - N/A

7.4.5 Range Fire

Responses to range fires are handled by preventive measures (i.e., keeping hazardous material and waste accumulation areas free of combustible materials such as weeds and brush). If a range fire breaches the facility boundary, the response is as described in subsection 7.2.4.

7.4.6 Aircraft Crash

The response to an aircraft crash is the same as that listed in subsection 7.2.5.3 for responding to transportation incidents.

7.5 SECURITY CONTINGENCIES

7.5.1 Bomb Threat

7.5.1.1 Telephone Threat

Individuals receiving telephoned threats try to gain as much information as possible from the caller (using the Bomb Threat Checklist if available). Upon conclusion of the call, notify the BED and Security via a 911 call.

The BED evacuates the facility and queries personnel at the staging area regarding any suspicious objects in the facility.

When Security personnel arrive, follow their instructions.

7.5.1.2 Written Threat

Receivers of written threats handle the letter as little as possible. Notify the BED and Security. Depending on the content of the letter, the facility may or may not be evacuated. The letter is turned over to Security personnel, and their instructions are then followed.

7.5.2 Hostage Situation/Armed Intruder

The discoverer of a hostage situation or armed intruder reports it to 911 and to the BED, if possible. The BED, after conferring with Security personnel, may covertly evacuate areas of the facility not observable by the hostage taker(s)/intruder. No alarms will be sounded.

Security will determine the remaining response actions and will activate the Hostage Negotiating Team, if necessary.

7.5.3 Suspicious Object

The discoverer of a suspicious object reports it to the BED and to 911, if possible, and ensures that the object is not disturbed.

The BED will evacuate the facility and (based on the description provided by the discoverer) attempt to determine the identity or owner of the object. This may be done by questioning facility personnel at the staging area.

If the identity/ownership of the object cannot be determined, then Security will assume command of the incident. An Emergency Ordinance Team will be dispatched to the facility to properly dispose of the device.

8.0 TERMINATION OF EVENT, INCIDENT RECOVERY, AND RESTART OF OPERATIONS

8.1 TERMINATION OF EVENT

The BED declares the termination of an event. However, if additional emergency centers are activated, only the highest activated level of the emergency organization, in conjunction with the BED, will declare that an event has ended. If the RL-Emergency Action and Coordination Team (EACT) is activated, only the RL director officially terminates the event. In all cases, however, the BED must be consulted before reentry is initiated.

8.2 INCIDENT RECOVERY AND RESTART OF OPERATIONS

A recovery plan is developed when necessary. A recovery plan is needed following an event when further risk could be introduced to personnel, the facility, or the environment through recovery action and/or to maximize the preservation of evidence. Depending on the magnitude of the event and the effort required to recover from it, recovery planning may involve personnel from RL and other contractors. If a recovery plan is required, it is reviewed by appropriate personnel and approved by a Recovery Manager before restart. Restart of operations is performed in accordance with the approved plan.

If this plan was implemented for a WAC emergency (see subsection 4.0), the Washington State Department of Ecology (Ecology) must be notified before operations can resume. Section 9.0 of DOE/RL-93-75 discusses different reports to outside agencies. This notification is in addition to those required reports and must include the following:

1. There are no incompatibility issues with the waste and released materials from the incident

2. All the equipment has been clean, fit for its intended use, and placed back into service. The notification may be made via telephone conference. Additional information that Ecology requests regarding these restart conditions may be included in the required 15-day report identified in DOE/RL-93-75.

For emergencies not involving activation of the ECC, the BED ensures that conditions are restored to normal before operations are resumed. If the Hanford Site Emergency Organization was activated and the emergency phase is complete, a special recovery organization could be appointed at the discretion of RL to restore conditions to normal. This process is detailed in RL and WHC emergency procedures. The makeup of this organization depends on the extent of the damage and its effects. The onsite recovery organization will be appointed by the appropriate contractor's emergency director.

8.3 INCOMPATIBLE WASTE

After an event resulting in a hazardous material/waste release, the BED or the onsite recovery organization ensures that no waste that might be incompatible with the released material is treated, stored, and/or disposed of until cleanup is completed. Cleanup actions are taken by facility personnel or other assigned personnel. Actions to be taken might include, but are not limited to, any of the following:

- Neutralization of corrosive spills
- Chemical treatment of reactive materials to reduce hazards
- Overpacking or transfer of contents from leaking containers
- Use of sorbents to contain and/or absorb leaking liquids for containerization and disposal
- Decontamination of solid surfaces impacted by released material, e.g., intact containers, equipment, floors, containment systems, etc.
- Disposal of contaminated porous materials that cannot be decontaminated and any contaminated soil
- Containerizing and sampling of recovered materials for classification and determination of proper disposal technique
- Followup sampling of decontaminated surfaces to determine adequacy of cleanup techniques, as appropriate.

Waste from cleanup activities is designated and managed as newly generated waste. A field check for compatibility before storage is performed, as necessary. Incompatible wastes are not placed in the same container. Containers of waste are placed in storage areas appropriate for their compatibility class.

If incompatibility of waste was a factor in the incident, the BED or the onsite recovery organization ensures that the cause is corrected. Examples include modification of an incompatibility chart or increased scrutiny of waste from a generating unit when incorrectly designated waste caused or contributed to an incident.

8.4 POSTEMERGENCY EQUIPMENT MAINTENANCE AND DECONTAMINATION

All equipment used during an incident is decontaminated (if practicable) or disposed of as spill debris. Decontaminated equipment is checked for proper operation before storage for subsequent use. Consumables and disposed materials are restocked. Fire extinguishers are recharged or replaced.

The BED ensures that all equipment is cleaned and fit for its intended use before operations are resumed. Depleted stocks of neutralizing and absorbing materials are replenished, self-contained breathing apparatus are cleaned and refilled, protective clothing is cleaned or disposed of and restocked, etc.

Factors to consider when establishing an equipment and personnel decontamination station are as follows:

- Water supplies
- Containment/catch basins and/or systems
- Staff necessary to accomplish proper decontamination
- Protective clothing
- Decontamination supplies (buckets, brushes, soap, chemicals as needed)
- Risk to personnel
- Weather conditions; i.e., severe heat, cold (current and forecasted)
- Toxicity of material
- Porosity of equipment to be decontaminated
- Disposal requirements of decontamination rinse
- Use of controlled zones to maintain contamination control.

9.0 EMERGENCY EQUIPMENT

Hanford Site emergency resources and equipment are described and listed in DOE/RL-93-75, Section 7.

9.1 FIXED EMERGENCY EQUIPMENT

FIXED EMERGENCY EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Wet-pipe overhead sprinkler system	Throughout building	Activated by heat. Designed to meet Extra Hazard, Group 2, NFPA requirements
Fire hydrant	Southeast exterior corner of the building enclosed in four yellow posts	Supply water for fighting fires
Eye wash/shower stations	Two units - one in combustible cell, and one in Packaging and Sampling Room	Immediate decontamination of personnel exposed to hazardous materials

9.2 PORTABLE EMERGENCY EQUIPMENT

PORTABLE EMERGENCY EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Fire extinguishers	Flammable Cell 1B Combustible Cell Hall near Change Rooms and Office Packaging and Material Handling Room	ABC Type
Dry Chemical	(See Above)	ABC Type

9.3 COMMUNICATIONS EQUIPMENT/WARNING SYSTEMS

COMMUNICATIONS EQUIPMENT		
SIREN SYSTEM		
Sirens are operated manually from the 616 NRDWSF Office		
SIGNAL	MEANING	ACTIONS
Steady Siren	Evacuate	Evacuate as directed
Waivering Siren	Take Cover	Seek shelter immediately
FIRE ALARM SYSTEM		
TYPE	LOCATION	CAPABILITY
Fire Alarm Button	Outside main entrance to the 616 NRDWSF	Alerts building occupants and the fire station
Fire Alarm Pull Box	In flammable cell 1B, acid cell, combustible cell, caustic cell, oxidizer cell, packaging room, and inside the main entrance	Alert occupants and fire station
OTHER COMMUNICATIONS EQUPMENT		
Loss of ventilation indicator lights	616 NRDWSF Office	Indicate when the office and cell ventilation systems are operable
Crash Alarm Telephone System	Position No. W-34 in the 616 Facility Identified with yellow label on the handle	Telephone system used to disseminate emergency messages; dialing a single number connects teh initiator to a predetermined number of telephones
Public Address (PA) System	616 Facility	Used for incidents that affect only a limited area near the incident
Telephones Radios	616 Office	Used for communication

9.4 PERSONAL PROTECTIVE EQUIPMENT

PROTECTIVE EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Corrosive material gloves	Packaging and Material Handling Room	Provide protection for hands when exposed to corrosive materials
Solvent resistant gloves	Packaging and Material Handling Room	Provide protection for hands when exposed to solvents, alcohols, and water-based solutions
Abrasion resistant gloves	Packaging and Material Handling Room	Provide abrasion, cut and puncture protection for hands when handling containers and tools
Response gloves	Packaging and Material Handling Room	Provide protection for hands when exposed to an undetermined chemical or a wide variety of toxic/ hazardous materials
Chemical resistant coveralls	Outside Men's Change Room	Provide protection when overpacking containers

9.5 SPILL CONTROL AND CONTAINMENT SUPPLIES

SPILL CONTROL EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Drum dolly	Material/equipment storage area	Specialized hand truck for moving drums
Absorbent material - cat litter, diatomaccous earth	Material/equipment storage area	Absorbing spills
Overpack drums	Material/equipment storage area	Overpack damaged containers
Chemical transfer pumps (hand pumps)	Material/equipment storage area	Transfer liquids to secure containers
(electrical)	Packing and sampling room	Transfer liquids to secure containers
(explosion-proof)	Flammable cell 1-A	Transfer liquids to secure containers
Nonsparking tools	Material/equipment storage area	Handling flammables

9.6 EMERGENCY RESPONSE CENTER

The Emergency Response Center for 616 NRDWSF Facility is the 616 Building office unless the facility is not habitable. In such an event, proceed as directed by the organization in charge.

10.0 COORDINATION AGREEMENTS

RL has established a number of coordination agreements, or memoranda of understanding (MOU) with various agencies to ensure proper response resource availability for incidents involving the Hanford Site. A description of the agreements is contained in Section 8.0 of DOE/RL-93-75.

11.0 REQUIRED REPORTS

Three types of written postincident reports are required for incidents on the Hanford site. The reports are summarized in DOE/RL-93-75.

12.0 PLAN LOCATION

Copies of this plan are maintained at the following locations:

- 616 Building Office
- All BEDs and Alternates Offices
- Northern Area ECC
- Hanford Local Area Network (HLAN).

13.0 REFERENCES

DOE Order 5000.3B, "Occurrence Reporting and Processing of Operations Information"

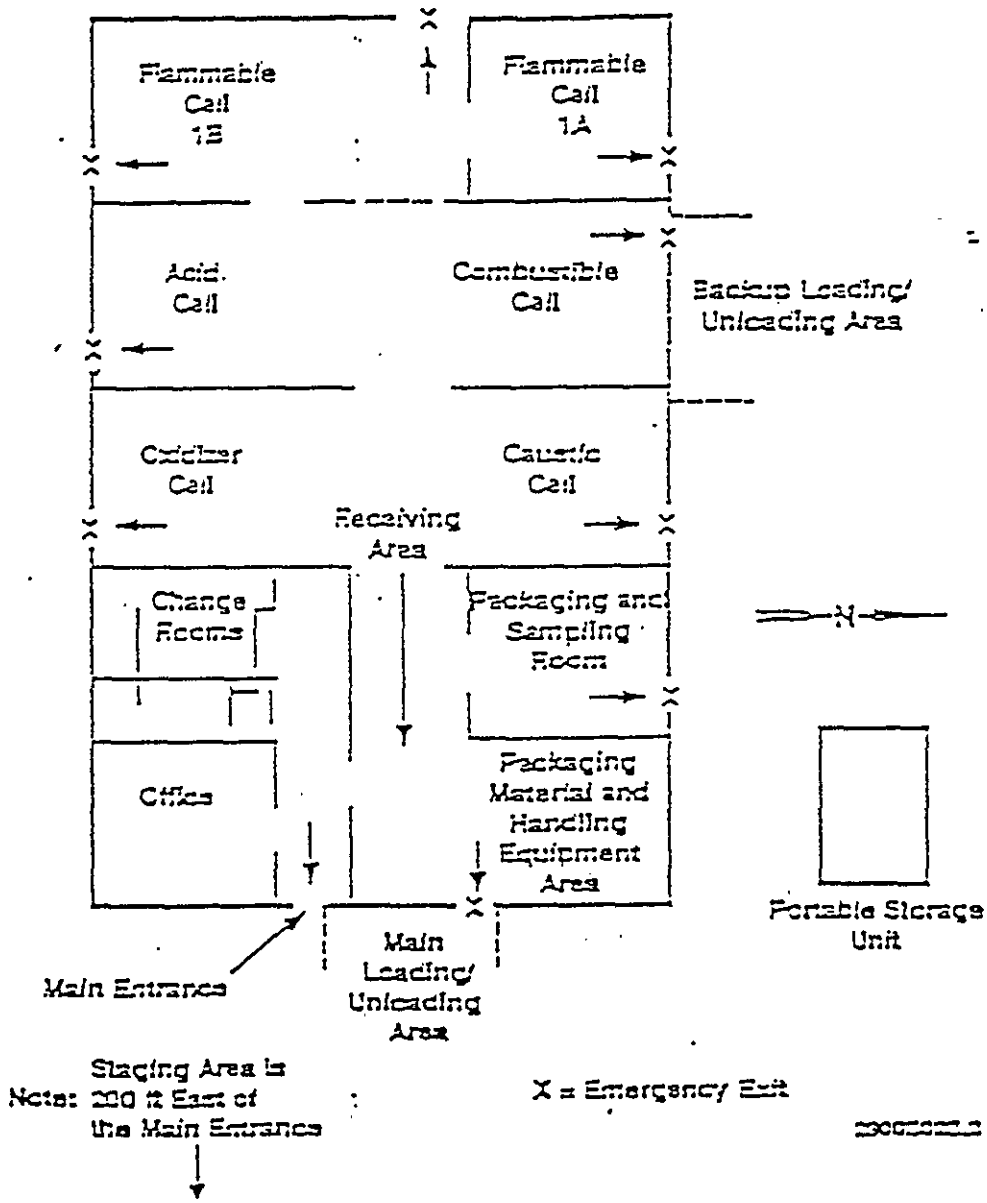
DOE Order 5500.1B, "Emergency Management Systems"

DOE/RL-93-75, *Hanford Facility Contingency Plan*

NIOSH, 1985, *Pocket Guide to Chemical Hazards*, National Institute of Occupational Safety and Health, U.S. Department of Health and Human Resources, Public Health Service, Centers for Disease Control, Washington, D.C.

WAC 173-303, "Dangerous Waste Regulations," Washington State Department of Ecology, Olympia, Washington.

Figure 1. The 616 NRDWSF Layout, Exits, and Staging Area



ATTACHMENT A

Listing of Procedures and Guides

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The list is maintained at the facility and will be provided upon request.

APPENDIX 8A

TRAINING

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TITLE:

TRAINING PLAN

Approved by

Original signed by
W. H. Hamilton, Jr., Director
Solid Waste Disposal

1.0 PURPOSE

This training plan implements the training requirements for Solid Waste Disposal (SWD) personnel. It represents a graded systematic approach to training requirements of pertinent federal, state and/or contractor regulations that apply to SWD personnel. This training plan also represents the training plan required by WAC-173-303 (2) and 29 CFR 1910.120 (e)(1)(i) for hazardous waste treatment, storage, and/or disposal (TSD) facilities and implements the requirements specified in the negotiated labor union contracts.

2.0 SCOPE

This training plan applies to all SWD personnel. It also specified minimum requirements for other personnel to enter and work in SWD Facilities. It specifies the training requirements and responsibilities for new and continuing employees, to ensure personnel are qualified to perform their job assignments. This training plan describes training program implementation, functions, and responsibilities.

3.0 DEFINITIONS

The following definitions apply to SWD.

Exception. A formal waiver granted to exempt an individual from a required training course.

Extension. Delay granted to meet initial training requirements or delay beyond the last date of the retrain zone granted to meet retraining requirements.

Facility. Equipment, systems, buildings, and other property units that facilitate or make an activity possible. Also used to refer to a TSD unit.

Function Manager. Any manager reporting directly to the division director.

Team Leader. Any first-line leader of a group.

Job Performance Measure (JPM)/Performance Demonstration (PD). A tool designed to evaluate related knowledge, skills, and abilities for a specific task or subtask.

Maintenance Manager. An operating facility level 4 manager of maintenance first-line managers and bargaining unit personnel.

Plant/Facility Manager. Manager of an operating facility.

Operating Facility. An SWD operating facility that encompasses the facilities in Solid Waste Management (SWM), T Plant, and the Waste Receiving and Processing (WRAP 1) faciltiy.

Operations Manager. An operating facility manager of operations team leaders and bargaining unit personnel.

4.0 RESPONSIBILITIES

This section outlines the responsibilities and organizational structure of SWD and operations training as related to SWD Operations.

4.1 Managers/Team Leaders

All SWD managers/team leaders are responsible for the following (as applicable):

- Providing an individual training plan for all employees newly assigned to SWD. The training plan will define actual training required by job assignment and will be placed in the employee's field training file.
- Ensuring that employees assigned to them receive required initial training, continuing training, and retraining as needed to be qualified to perform their assigned duties (Appendix A)
- Maintaining up-to-date personnel training records for the employees assigned to them, in accordance with Section 5.3 of this training plan. Managers will be able to demonstrate that their employees are qualified to perform their assigned tasks, in accordance with this training plan
- Functioning as the qualifying official for all assigned personnel except as noted in Sections 4.2 and 4.3.
- Determining the specific qualification goals for each individual, consistent with this training plan
- Providing development and review support for training materials; recommending material(s) for approval
- Supervising and/or conducting on-the-job training (OJT), and JPM/PD of assigned personnel
- Recommending training exceptions or extensions
- Participating in oral examinations as required
- Serving as a member of the Training Review Board, which affects assigned personnel

- Ensuring that emergency drills performed are safe and efficient
- Assisting the drill coordinator in preparing and implementing drill exercises.

4.2 Plant/Facility Manager

The plant/facility manager is responsible for the following:

- Ensuring that the training program and qualification programs are administered, improved, maintained, and are consistent with and applicable to facility configuration.
- Functioning as the operating facility qualifying official by acting as signature authority for all qualified operations managers/team leaders.
- Approving exceptions or extensions in individual training plans.

4.3 Operations Manager

The operations manager is responsible for the following functions for operations personnel:

- Acting as the approval authority for all operations training
- Maintaining the quality of operator training.

4.4 Operations Team Leaders

The team leaders of operations bargaining unit personnel assigned to SWM, WRAP 1, and T Plant are responsible for the following:

- Ensuring a sufficient number of trained and qualified personnel are available to safely meet the operations schedules of the SWD facilities
- Ensuring that operations personnel assigned to an operations job are qualified on that job or work under the direction of properly qualified personnel.
- Ensuring the training progress of assigned personnel and that all training requirements are met.
- Maintaining the quality of Operator training.
- Administration JPM/PD.

4.5 Maintenance Managers

All SWD maintenance managers are responsible for the following (as applicable to maintenance personnel):

- Acting as the approval authority for all maintenance training
- Maintaining the quality of maintenance training.

4.6 Maintenance Team Leader

The team leaders of maintenance bargaining unit personnel assigned to SWM, WRAP 1, and T Plant are responsible for the following:

- Ensuring a sufficient number of trained and qualified personnel are available to safely meet the maintenance schedules of the SWD facilities
- Ensuring that maintenance personnel assigned to a maintenance job are qualified on that job or work under the direction of properly qualified personnel
- Ensuring the training progress of assigned personnel and that all training requirements are met
- Maintaining the quality of maintenance training.

4.7 OJT Instructors

Qualified operators and maintenance craft personnel may be trained as OJT instructors. The OJT process is described in Section 5.8.

The OJT instructors are responsible for the following:

- Providing supervised hands-on training in the work environment to accomplish performance objectives required for completion and evaluation of the training tasks
- Ensuring that the trainee has satisfactory knowledge of and competence in skills requirements, as defined on the qualification card and in the study guide
- Signing and dating the OJT qualification card, indicating that the acceptable performance levels were met as required by plant operating procedures, study guide references, and the appropriate OJT qualification cards.

4.8 Employees

All SWD employees and support personnel are responsible for the following:

- Working with their managers to define appropriate training
- Completing necessary training to gain/maintain qualifications.
- Attending all training as scheduled.

4.9 Training Manager/Team Leader

The training manager/team leader establishes, conducts, and administers the training program for the SWD facility managers to ensure personnel are trained to meet their assigned jobs. In addition to the minimum training requirements listed in Appendix A, the training team leader will also qualify as a operations manager/team leader at the discretion of the plant manager.

The training managers/team leaders provide classroom instruction and training in accordance with the requirements established in this training plan. As defined in this training plan, training team leaders support final written and oral examinations and OJT documentation. SWD facility managers are responsible for OJT and qualification.

The training managers/team leaders are responsible for the following:

- Developing and conducting training
- Assigning dedicated instructors to the facilities to meet the needs of SWD facility personnel
- Assisting managers/team leaders in implementing training requirements for their personnel
- Reviewing training requirements annually (at a minimum) for adequacy of need and adherence to regulations
- Reporting overdue training to SWD managers
- Processing extensions/exceptions to training requirements
- Assisting managers in scheduling training classes
- Evaluating training program effectiveness
- Instructing training classes
- Indoctrinating and training assigned instructors
- Developing and updating training texts and lesson plans
- Preparing, administering, and evaluating written and oral board examinations
- Preparing and updating study guides and OJT qualification cards
- Preparing and administering requalification lectures and examinations
- Preparing and administering JPMs/PDs
- Preparing and updating quarterly, as a minimum, a list of the qualification status for all personnel assigned. This list must include job title and name of the employee. The list, this training plan, and all personnel training files (Section 5.3) comprise the training plan required by WAC-173-303-330(2) and are subject to regulator inspection/audit.

4.10 Instructor

The instructor is a primary contact between the SWD personnel and the training organization. The instructor should understand the processes and equipment pertinent to facility operations. The instructor coordinates training activities for SWD with the respective operations managers. Instructors may be assigned responsibility for the following:

- Developing and maintaining study guides and OJT qualification cards
- Developing, maintaining, and administering written examinations
- Developing and conducting training on both new and existing systems or equipment
- Maintaining and coordinating the development and revision of training materials
- Providing (or assisting in conducting) designated training
- Providing or supporting special training programs
- Providing and updating facility-specific training schedules
- Providing periodic status reports, and assisting with designated training reports
- Advising management of changing training needs, scope, and contractual requirements
- Developing JPMs/PD for use in conducting operational examinations.

5.0 GENERAL ADMINISTRATIVE REQUIREMENTS

Administrative training requirements for all SWD personnel are specified in the sections that follow. The SWD operations training program requirements are specified in Section 6.0.

5.1 Training Identification

The position terminology used in Appendix A represents the standard nomenclature used on the Hanford Site. For the purpose of compliance with WAC-173-303-330(2), the following position equivalencies are established:

WAC 173-303 Position Categories	Appendix A Positions Included in WAC 173-303 Categories
All Employees	Hanford Site personnel, visitors, and subcontractors not included in one of the following categories who enter a TSD unit where regulated or permitted dangerous waste management activities are conducted in accordance with the WAC 173-303.
General Worker	Hanford Site personnel, visitors, and subcontractors with waste management duties such as waste generation, container packaging, conducting surveys, loading containers, or providing direct oversight to waste handling activities. Examples include the following positions (Appendix A): • Maintenance personnel • Contractor crafts • Radiological control technicians • Truck drivers • Process crane operators • Engineer.
Advanced General Worker	Hanford Site personnel whose duties exceed that of General Workers as follows: • Nuclear process operators (NPO) qualified in the T Plant complex • NPOs qualified in any of the SWM facilities • NPOs qualified in the WRAP facility.
General Managers	Hanford Site personnel who hold positions or responsibilities in the following areas: • Personnel who act as the Emergency Coordinator and/or alternate • T Plant, Solid Waste, or WRAP operations managers, operations person-in-charge (PIC), or operations team leaders • T Plant, Solid Waste, or WRAP building emergency directors • T Plant, Solid Waste, or WRAP environmental compliance officers • Engineer/scientist/hazardous material specialist/team leader in the Generator and Waste Acceptance Services group • Engineers who affect the process/safety systems of a SWD facility (may include cognizant, systems, test, and/or maintenance engineers).
General Shipper	Hanford Site personnel who prepare and sign waste movement documentation for onsite and offsite shipments.

Appendix A provides training classes applicable to each position.

5.2 Minimum Position Requirements

Minimum position requirements are established for all positions. For bargaining unit, nonexempt, and nonmanagement exempt positions, the requirements are specified in standard position descriptions located in each individual's training field file. For management and team leaders the requirements are specified in individual position descriptions, subject to the minimum requirements specified in Appendix A, Table 1. For exceptions to these standard requirements where an individual does not meet the literal education requirements, consideration may be given to the collective experience of the person with two years of experience equal to one year of formal education. Individuals who do not meet the experience requirements for a position may be assigned to that position, providing the overall operating organization is considered balanced and strong. Exceptions are approved on a case-by-case basis by the SWD manager on the appropriate employment documentation.

Table 1. Minimum Position Requirements for Selected Positions.

Position	Education degree	Related experience
Managers	Bachelor	4 Years
Team Leaders	High School	3 Years
Operators	High School	--

All personnel assigned to SWD on or before August 12, 1992 are considered to meet the requirements of Section 5.2 for their current and future positions within SWD.

5.3 All Employees

New employees must meet the training requirements described in Appendix A within six months of assignment to SWD. In addition, as new requirements are identified and indicated in this training plan, SWD personnel will comply the new requirements within six months of the effective date of the revision. All SWD managers will prepare a training field file for all their employees. The training field file includes the following:

- Employee profile system worksheet (not required for bargaining unit personnel)
- Health evaluation (as applicable)
- Completed Hanford Site training
- Individual training plan and annual reviews and updates
- Qualifications achieved (both company and outside sources)
- Correspondence related to exceptions or extensions to training
- Position description.

In addition to the items listed in Sections 5.0 through 5.2, all operations managers, operations team leaders, and operators complete the 200 Area Operations fundamental training programs. Exceptions to this requirement may be authorized by the SWD director based on formal education background and technical experience.

The operations managers and operations team leaders will demonstrate a satisfactory level of knowledge in all areas in which their employees must be qualified by meeting the requirements identified in Appendix A. The operations managers, operations team leaders, and criticality safety representatives also will demonstrate a satisfactory knowledge level to an oral examination board before final qualification.

5.4 Examinations, Tests, and Quizzes

Where specified on the course outline, training courses provide a method to evaluate whether an employee is ready for either a new or continuing assignment and how much required training has been completed. In these cases, the employee must demonstrate a satisfactory knowledge of all required subjects covered in the training program. This demonstration may include written, oral, and operational examinations as appropriate to the position, experience, and educational level of the employee. Quizzes may be used for intermediate evaluation of the effectiveness of on-going training.

5.4.1 Examination Development

Examinations cover subjects in which personnel are expected to be proficient and emphasize those subjects covered by the continuing training program. Requalification and continuing training program examinations cover materials in accordance with training requirements.

The goal of an examination is to produce a fair and consistent evaluation of an employee's readiness for either a new or continuing assignment to specific tasks and/or completion of required training.

Examinations test the depth of knowledge defined in the related study guides and practical knowledge defined on the OJT qualification cards for the position.

5.4.2 Administration of Written Examinations for SWD Operations

Written examinations are given as part of the qualification or requalification process for personnel in job positions requiring formal qualification. Written examinations for requalifications are required every two years for the following qualifications:

- Managers plant specifics (SWM only)
- T Plant surveillance
- T Plant waste handler
- T Plant Canyon decontamination
- 2706-T decontamination
- Central Waste Complex operations
- Transuranic (TRU) Storage and Assay Facility (TRUSAF)

- Nonradioactive Dangerous Waste Storage Facility
- Low-Level Burial Grounds
- Radioactive Mixed Waste Land Disposal Facility
- TRU Retrieval program
- Solid Waste verification sampling
- WRAP 1 Shipping and receiving operator
- WRAP 1 Process glovebox operator
- WRAP 1 Restricted waste glovebox operator
- WRAP 1 Control room operator
- WRAP 1 Operations manager/operations team leaders.

5.4.3 Administration of JPMs/PDs for SWD Operations

Completion of JPMs/PDs is the final step in achieving job qualification for SWD operators. The JPMs/PDs are administered by qualified independent evaluators who are either operations team leaders or training personnel, but not the immediate team leader of the employee being evaluated. The examination consists of a minimum of two, and not more than 15, JPMs/PDs sufficient to evaluate an individual's knowledge, skills, and abilities in all important areas of job performance. Independent evaluators act as the final approval authority for the qualification process.

5.4.4 Examination Control

The training team leaders approve qualification examinations. Completed examinations are retained as part of completed qualification records. Examinations are controlled to prevent compromise of examination material. The examinations are stored in a locked storage container or in password protected computer files except as required for administering to a student, review by the oral examination board, for audit purposes, or update by examination author. Approved locations for storage of written examination material are designated by the training organization.

5.4.5 Oral Examinations

The final step of a qualification process for operations managers/team leaders is an oral examination. This evaluation assesses the candidate's knowledge of operations, systems, and interactions to determine the candidate's readiness for qualification and for assuming the responsibilities of a qualified SWD manager/team leader or Criticality Safety Representative.

5.4.5.1 Oral Examination Board. The Oral Examination Board consists of a minimum of four members. These members evaluate and score the candidate's responses. The board is chosen from the following (or their designees):

- Operations support manager (as applicable)
- Facility operations manager
- Operations engineering manager
- Nuclear, safety, and/or environmental manager
- Applicable SWD training team leader
- Radiological control manager
- Plant or deputy plant manager.

The plant manager or deputy plant manager acts as the board's chairperson and performs the following:

- Ensures all prerequisites are met before commencing the oral board
- Provides a schedule for the candidate and board members with the time and location at least five working days before the board meeting
- Ensures the board is conducted in a professional manner and that the established rules and guidelines are followed
- Ensures the candidate is aware of the following:
  - The general conduct, scope, and length of the examination, and other pertinent information
  - The candidate's right to seek clarification of the examiner's questions when necessary
- Provides the candidate with the results of the board.

5.4.5.2 Oral Examination Categories. The oral examination consists of documented questions from (but not limited to) the following specific areas, if applicable to the facility or position:

- Design, control, operating, safety/safety analysis report limitations, and facility permit requirements
- Means by which facility design, operations, or procedures may be changed
- Radioactive and nonradioactive hazards within the facilities or plant
- Handling, controlling, and disposing of radioactive and nonradioactive hazardous materials and effluents
- Criticality safety requirements and procedures
- Industrial and fire safety, security, conduct of operations, and emergency systems, including reporting procedures
- Mechanical, electrical, and chemical theory
- Facility operating characteristics
- Job Control System (JCS).

5.4.5.3 Documentation and Evaluation of Oral Examinations. Each oral examination is documented on an oral examination form identified in the examination procedures and supplied to each examiner. The examiner documents only the comments that are relevant to determining a pass or fail conclusion.

The candidate and selected training personnel may see the comments. Each examiner evaluates the candidate's responses to every question that the examiner feels able to properly assess.

The following system is used for grading the examination.

- S--(SAT). Excellent to good knowledge and understanding of the subject. The candidate has demonstrated sufficient knowledge to safely carry out the responsibilities of the position.

- M--(Marginal). Fair working knowledge and understanding of the subject. The candidate may have difficulty answering questions in depth and relating the interaction between various systems.

- U--(UNSAT). Poor working knowledge and understanding of the subject. The candidate is unable to provide an answer, or the answers are incorrect or incomplete. The candidate shows obvious unfamiliarity with the subject, such as unusually hesitant answers or lack of understanding.

All grades are awarded on the basis of the candidate's verbal responses during the oral examination. The use of marginal evaluations should be minimized. Areas where the candidate's knowledge is marginal should be explored further in an attempt to determine if an "S" or "U" rating is warranted. If the marginal evaluation stands, supporting notes should be included, and the examiners objectively judge whether the candidate should pass or fail the examination. The candidate may be allowed to take additional training at a later date and retake an unsatisfactory or marginal portion of the Oral Board Examination, at the board's discretion.

The forms pertaining to the examination should be used only as an aid to the examiners in conducting the examination and as a means of documenting the basis for the examiner's pass/fail determination. The pass/fail determination is based on an audit of the candidate's level of knowledge, and (as such) all applicable areas should be explored in varying degrees of depth.

Each examiner must recommend approval or disapproval of the qualification based on the results of the entire examination. To successfully pass the oral examination, the candidate must receive a passing grade from each of the examiners.

5.4.6 Grading Standards--Written Examinations

For bargaining unit personnel, the satisfactory performance level for any objectively graded written examination is 70 percent. If the average grade is less than 70 percent, the entire examination must be retaken following remedial training, as specified in Section 5.11 and in accordance with the agreement between Westinghouse Hanford Company (WHC) and Hanford Atomic Metal Trades Council (HAMTC).

For exempt personnel, the satisfactory performance level for any objectively graded written examination is 80 percent. If the average grade is less than 80 percent, the entire examination must be retaken following remedial training, as specified in Section 5.11.

5.5 Qualification Card and Study Guide Administration for Operations

The qualification card contains the requirements for qualification. Requirements may include facility-specific training, classroom training, individualized instruction, OJT, comprehensive written exam, and operational exam. The qualification card documents qualification status and is an auditable record of an individual's participation in the performance based training program. The elements in the card are based on job analysis and supported by a task list.

Qualification cards are instruments for tracking and proving accomplishments and provide the employee with a list of requirements and a path of progression. The minimum required level of accomplishment shall be specified in the respective checklist for all requirements.

The study guide contains instructions and evaluation criteria. Knowledge requirements for the task to be performed are also found in the study guide. Qualification guides are developed and used to provide consistent OJT from trainer to trainer.

5.6 Provisional Qualification

Provisional qualification shall be established by the facility manager when the performance level required for full qualification cannot be satisfied. The provisional training program shall be approved by the training and operations managers and shall be established at the highest practical level consistent with work to be performed and existing constraints. Provisional qualification only covers tasks contained in the qualification card. Full qualification is necessary for unrestricted operation of a system or process. A provisional qualification is limited in scope and duration and will be in force only until full qualification can be achieved.

Provisional qualifications are valid for a maximum of one year.

5.7 OJT Qualification Guides for Maintenance Personnel

Maintenance OJT Instructors use OJT qualification guides to implement the OJT training process. A job-task analysis is used to determine which tasks are covered in the OJT qualification guides. The OJT qualification card documents the OJT process.

The OJT qualification card is an auditable record of an individual's participation in the performance-based training program. The OJT qualification card contains specific tasks identified by the job-task analysis for discussion, performance, and/or simulation. Upon completion of the training and evaluation process, the OJT instructor will sign off each task item.

The OJT qualification guide contains specific knowledge and skill requirements, specific technical material and references to enable the student to complete the identified task. The OJT qualification guide is a study reference document, training guidance instrument, and evaluation criteria for trainers, instructors, evaluators, and managers.

Section 1 of the OJT qualification guide identifies the specific task and the supporting skills and knowledge. Section 2 contains the technical material that addresses each knowledge factor. Section 3 contains the hands-on training where the student practices the specific skill factors. Section 4 contains the JPM and the qualification card.

OJT qualification guides should be reviewed by a subject matter expert who was not directly involved in their development and approved before use.

5.8 OJT

All OJT in SWD facilities is performance based. The method of conducting OJT, the required level of accomplishment, and performance test criteria are determined during the training material development process. The training and performance testing a trainee receives will qualify that individual to perform the task. Study guides and OJT qualification cards for individual qualification are developed to document training and to provide guidance for the instructor and the trainee.

The OJT instructors, subject matter experts, selected operators, maintenance crafts personnel, managers, and operations team leaders will be qualified to conduct OJT and performance tests in their areas of expertise. The primary method used to conduct OJT is the demonstration-performance method. When conditions warrant, alternate methods (such as discussion or simulation) may be used.

5.9 Proficiency Maintenance

It is necessary to maintain proficiency in facility operations and maintenance. This requires periodic hands-on experience to supplement the formal qualifications for facilities and/or watch stations. The following requirements will be met to ensure that proficiency is maintained:

1. An operator who fills one of the operator qualification positions must have completed a full shift in the same position within the last six months.

2. An operator who does not complete a full shift in a position in any six-month period has not maintained proficiency. This can be rectified by reviewing the facility/position status with the responsible manager and documenting satisfactory review in the individual's training file.

3. Operations managers, operations team leaders, and plant/facility managers will maintain proficiency through their normal duties.

4. Proficiency of SWD maintenance personnel will be maintained by performance of assigned tasks or through equivalent training.

5.10 Failure Criteria

Failure to complete a component of a training program, failure to meet specified criteria during initial and continuing training, and/or a demonstrated deficiency requires initiating a remedial training program. An employee who has failed all or part of a training program must be assigned duties that do not require the failed training or be supervised by a trained individual. Remedial training is conducted in accordance with Section 5.11.

5.11 Remedial Training

Remedial training is an individually prepared program transmitted to the individual by internal memo from their immediate manager along with a remedial/retraining plan (the plan need not be more the one page in length). The program gives the individual experiencing difficulty written direction for actions to achieve required results. The remedial training program evaluates the effectiveness of the remedial training (i.e., for a classroom examination failure, a re-examination; for operational difficulties, an operational evaluation).

Remedial training programs are assigned as necessary, but must be assigned for the following:

- Failed classroom examinations
- Failed written qualification examinations
- Failed JPMs and PDs
- Failed oral board examinations
- Failed biennial written examinations.

The remedial training should be designed to ensure that the individual acquires additional knowledge. A two-week minimum waiting period is required before an employee may retake a failed written qualification examination. Remedial training may be recommended by the individual's immediate manager, instructors, or training evaluators.

Remedial training must be approved by the appropriate line manager. The completed copy of the remedial/retraining plan and its results will be filed with the individual's training field file.

5.12 Training Review Board

The employee's immediate manager or team leader determines and recommends to the Training Review Board the requirements for the following:

- Individual requalification for previously qualified personnel returning to work following extended absences (greater than six months for SWM and WRAP 1; and three months for T Plant) and/or corrective action

- Individual requalification for previously qualified personnel demonstrating poor performance in the training program or facility operations.

The Training Review Board consists of the following:

- Individual's function manager
- Individual's facility/field operations manager or operations team leader
- WRAP 1, SWM, or T Plant training team leader or Operations Support team leader (when applicable)
- A bargaining unit member as applicable.

A copy of approved corrective actions and applicable milestones must be filed in the individual's field training file. Documentation of completion of corrective actions is submitted with completion of the associated training.

The Training Review Board approves a recommended course of action.

5.13 Continuing Training Program

Continuing training is designed to support and enhance the proficiency of operations personnel.

Continuing training provides qualification-oriented training and refresher training in selected areas.

The program, at the option of the training manager/team leader, may include:

- Attendance at selected continuing training lectures
- Completion of required reading
- Completion of selected OJT tasks
- Completion of all courses to maintain job qualifications
- Drills in the facility for response to abnormal or accident situations.

The training managers/team leaders document the completion of continuing lectures and OJT (beyond that required for qualification).

Continuing training lectures are scheduled and conducted as required.

If employees miss a lecture, their team leader/manager or another team leader/manager will cover the equivalent material and document the lectures in their training file.

Training is specific to each operating facility. The SWD training team leaders, maintenance team leaders, and/or Operations Support team leaders compile the agenda for the lectures based on information received from operations, engineering, maintenance, and/or training needs. The lecture topics could include the following:

- Changes and upgrades to qualification packages
- Procedural changes
- Process/structural changes
- Industry events
- Unusual occurrences
- Lessons learned
- Demonstrated knowledge deficiencies
- Upgrading existing knowledge levels.

5.14 Required Reading

Important information relative to job assignments must be made available to appropriate personnel. The SWD uses required reading as a formal system to ensure that appropriate individuals receive important information. See Section 3.20 of this manual for further amplification.

5.15 Drill Program Description

Drills are conducted for operations personnel to develop and maintain proficiency in responding to abnormal or accident conditions. Teamwork skills are integrated into situations where technical knowledge and team skills are necessary. The objective is to establish, maintain, and enhance the performance of the individual and the team. Drill scenarios should identify and correct performance deficiencies related to abnormal and/or emergency situations.

5.16 Training Material Development

Training material is developed using a systematic approach (e.g., performance-based training) to ensure that all personnel are qualified to perform job requirements.

The affected group management, operations training, and facility management approve training materials. In addition, training material may be reviewed by other support organizations, as determined by SWD management.

5.17 Training Material Maintenance

Training material will be reviewed for accuracy as changes to state or federal regulations, plant or facility design or processes change, or changes in plant operating procedures take place. Training material will be reviewed and updated at intervals not to exceed two years.

5.18 Training Status Records

Training records are maintained by using the training records information (TRI) or TMX system and with the updates to employee training field file.

The following sections discuss exceptions and extensions.

5.19.1 Exceptions

Exceptions to initial and continuing training are considered on a case-by-case basis and are initiated by individual's immediate manager or team leader. The employee's name, the subject for which the exception is requested, and justification for the exception are sent to a plant/facility manager, or manager equal in authority for approval.

Under certain conditions, employees may be granted equivalency or be exempted or waived from specific qualification prerequisites or requirements.

Any deviation from the normal qualification requirements or qualification path must be documented on the individual's training field file. This documentation states what specific variation is requested and provides a short justification for the variation. No employee can be exempted from written or oral examination requirements associated with a qualification.

5.19.2 Extensions

Extensions of qualifications may be granted on a case-by-case basis by the plant/facility manager or manager equal in authority. Requests for extensions are prepared and processed by the applicable training team leader for approval by the applicable manager. An individual's manager or team leader will initiate the request for extension and should include, as a minimum, the following:

- The length of extension
- An explanation of the circumstances that prevented the person from completing the requirements
- A description of the operational schedule and/or commitment that necessitated the extension.

NOTE: Extensions of qualification for nuclear operators, operations team leaders, and managers usually will not be granted.

Anyone whose qualification has lapsed will be designated as a trainee in that area. Trainees will perform work as an extension of a qualified person only if the trainees are physically controllable by the qualified person.

5.20 Instructor Subject Matter Experts

The subject matter experts may be part-time instructors under the following conditions.

- The subject matter expert is qualified (or previously qualified) and/or experienced in a particular subject, topic, system or duty area.

- The technical competence of the subject matter expert is verified by virtue of the individual's job assignment and overall command of the subject matter.

- An subject matter expert may be used to team-teach with the primary instructor.

5.21 Training Records

The SWD processes training records as follows.

- The original records are sent to and recorded on the TRI/TMX system.

- Field copies of records are maintained in the employee's training file. Contents of these files are listed in Section 5.3.

- A current training record is maintained by the individual's manager or team leader for the duration of employment in the facility, plus a three-year audit period. Personnel training records may accompany personnel transferred within the same company.

- The responsible team leader/manager reviews individual training records annually to ensure that tasks assigned and training received are appropriate for their employees.

- Letters or statements indicating the acceptance or denial of a request for exception to training and the basis for the justification are maintained in the employee's training field file.

- As required by Section 5.3, the employee profile system worksheet, recent health evaluation, position description, and statement of qualifications achieved also are maintained in the training field file as applicable.

The following forms can be obtained from applicable SWD training sections and are used to support and document the SWD training programs.

- The Individual Training Plan documents the training required for an employee. This record is maintained in the employee's training field file and reviewed and updated (as necessary) at least annually.

- The OJT qualification cards are used during the qualification process to record the completion of the required task items. The OJT qualification cards provide a permanent record of the qualification for each qualification package.

- The Oral Examination form records both the questions asked and key points from answers given during an Oral Board Examination. The Oral Examination form provides a permanent record to qualify the individual for qualification.

5.22 Qualified Personnel Status Report

The WRAP 1, SWM, and T Plant Training organizations issue a monthly report to WRAP 1, Solid Waste, and T Plant facility managers that provides the current training status for each of their employees. The managers are responsible for scheduling their employees for the applicable training.

NOTE: Managers are encouraged to use their training sections to assist them in scheduling and tracking training.

The PC&A manager compiles and issues a monthly report to the manager, SWD, identifying the qualification status of SWD personnel.

5.23 Facility Modifications, Procedure Changes, and Operating Experiences

Training on selected facility modifications, procedure changes, and operating experience is conducted during the continuing training program. When warranted by the significance of the information, the manager, team leader, or other appropriate personnel conduct a brief personnel lecture on the subject, incorporate the information into the support training schedule, or include the information in required reading.

5.24 Qualification Restrictions and Durations

Qualifications are granted only if the following conditions are met.

- All qualification requirements are completed (written and/or oral examinations, OJT requirements, and JPMs/PDs).
- Other specified requirements are completed (e.g., medical examinations).
- Immediate manager gives approval.
- For operations qualifications, an independent training evaluator verifies satisfactory completion of tasks that result in qualification.

5.25 Requalification Process

All employees will complete all training programs and/or courses in accordance with the established guidelines for the individual program/course. Requalification for specific job assignments is specified in Appendix A.

Written and/or oral examinations and proficiency demonstrations are used (to the extent possible) for requalification if the facility is not operated frequently enough to meet normal proficiency requirements.

If an employee has not received the job-specific training or retraining required for the work assignment within the required time, the employee will be relieved from the assignment until the required training or retraining is complete. The employee will, however, be allowed to work in the assignment under the direction of a qualified employee.

6.0 SOLID WASTE DISPOSAL TRAINING PROGRAMS

Training requirements for SWD personnel and visitors are defined in Appendix A.

7.0 DESIGNATED REVIEWING ORGANIZATIONS

This procedure does not require review outside of the SWD Division.

8.0 REFERENCES

WHC-IP-0867, *Operation Training Materials Development Guidelines.*

9.0 BIBLIOGRAPHY

DOE 1324.2A, "Records Disposition."

DOE 5480.1B, "Environment, Safety, and Health Program for DOE Operations."

WAC-173-303-330, "Personnel Training."

40 CFR 264.16, "Personnel Training."

WHC-CM-1-3, *Management Requirements and Procedures.*

WHC-CM-3-5, *Document Control and Records Management Manual.*

APPENDIX A
TRAINING AND QUALIFICATION REQUIREMENTS

The training addressed in this appendix is presented in three tables. Table 1 identifies training requirements by job position and lists course requirements by categories. In most cases job position titles are generic. Managers are responsible for determining which job position category is applicable for employees and the subsequent required training. Categories A though E identify RCRA required training and is subject to review and/or audit by the Washington State Department of Ecology. Categories F through K identify non-RCRA required training and, in regard to an Ecology audit, is intended as information only.

Tables 2 and 3 list courses by category. In Table 2, the categories correspond to the position categories addressed in paragraph 5.1 of this training plan. Table 3 categories organize courses into general groupings. Managers must determine the specific course requirements for employees based on both general requirements and requirements unique to an employee's job assignment. Some courses are annotated with a qualifier such as "As required by job assignment" or "For Solid Waste only." In these cases where an employee's assignment does not warrant certain courses, or the employee works for a facility other than the target audience of a course; the course is not considered required training. A listing of additional training (classified as enhanced training) to improve on an employee's job skills, but not otherwise required, can be obtained from the facility training groups.

To determine required training for an employee, refer to Table 1 and find a corresponding job position. Adjacent to the job position is a series of X's and numbers. The X's indicate all training in that category is required unless otherwise noted (e.g., "As required by job assignment," "For Solid Waste only," etc.). The numbers in place of X's under the main categories indicate the requirement to receive training only in the identified sections of that category. As an example, under Category C, a trainer is required only to take courses under C-1. A nuclear process operator is required to take all courses in Category C indicated in Table 1. For employees falling into more than job one position or assignment, the requirements of both job position categories apply.

A dotted line separating courses distinguishes initial and retraining courses. For example, course number 02006A is retrained in 000001. The initial course is listed first, followed by a dotted line then the requalification course. A dashed line between courses are courses that are interrelated and normally have a required prerequisite course or courses.

Table 1. Training Matrix.

Job Position	RCRA (Table 2)					NON-RCRA (Table 3)					
	A	B	C	D	E	F	G	H	I	J	K
SUPPORT PERSONNEL											
ACTIVITY ADMINISTRATOR/ENGINEER	X						3				
CLERK	X						3				
COMPUTER TECHNICIAN	X						3				
SECRETARY	X						3				
ENGINEERING WRITER	X						3				1
RECORDS SPECIALIST	X						3				
PROJECT CONTROL ANALYST	X						3				
PLANNER/SCHEDULER	X						3				
STAFF ASSISTANT	X						3				
SYSTEMS ANALYST	X						3				
WORK CONTROL PERSONNEL											
JOB CONTROL ADMINISTRATOR	X						1+3			1	1
JOB CONTROL CLERK	X						3			1	1
PLANNER/SCHEDULER	X						1+3			1	1
MATERIAL CONTROL SPECIALIST	X						3			1	1
MATERIAL COORDINATOR	X						3			1	1
TECHNICAL SUPPORT PERSONNEL											
ENGINEER/SCIENTIST (Facility)	X	1		2		1+6	1+3		1+6	1	1+12
ENGINEER/SCIENTIST (NON-Facility)	X			2		1+6	3				1
ENGINEER/SCIENTIST (Environmental)	X	X		2	1	1+6	3	2			
ENGINEER TECHNICIAN	X	X					3		1		
ENVIRONMENTAL COMPLIANCE OFFICER	X	X	2	2	1	1	3	2	1		1+4+7
ENVIRONMENTAL ENGINEER (T Plant)	X	X	2	2	1	1+6	1+3	2	1	1	1+12
HEALTH PHYSICIST	X	1				1	3				1
HAZARDOUS MATERIAL SPECIALIST	X	X		2		1+6	3	2			1
FIRE PROTECTION ENGINEER	X	1				1	3+9				3+6
INDUSTRIAL HYGIENIST	X	1				1	3+9				3
INDUSTRIAL SAFETY ENGINEER	X	1				1	1+3+9				3+6

Table 1. Training Matrix.

Job Position	RCRA (Table 2)					NON-RCRA (Table 3)					
	A	B	C	D	E	F	G	H	I	J	K
NUCLEAR SAFETY ENGINEER	X	1				1+6	3+9				3+6
PLANT ENGINEER (Facility)	X	1				1+6	1+3			1	1
PLANT ENGINEER (NON-Facility)	X						3				
PLANT ENGINEER (Environmental)	X	X		2	1	1+6	3	2			
QUALITY ASSURANCE ENGINEER	X	1				1	3				
RADIOLOGICAL CONTROL ANALYST (RCT)	X	1				1	3				1
RCT NUCLEAR ENGINEER	X	1				1	3				1
TRAINING INSTRUCTOR	X	1	1			1+6	1+3	2			1+2+8
TRAINING EVALUATOR	X	1	2	2+4	1	1+6	1+3+9	2	1+4		1+2+8+10
CRAFT PERSONNEL											
ELECTRICIAN	X	1				1+5	1+3+4+8+9			2+5 +11	1
INSTRUMENT TECHNICIAN	X	1				1+5	1+3+8+9			9 +11	1
INSULATOR	X	1				1+5	1+3+5+9				1
MILLWRIGHT	X	1				1+5	1+3+4+9			10 +11	1
NUCLEAR PROCESS OPERATOR	X	1	X			1+4	1+3+4+9	1	3+4+5+6	1+5	1+2
PAINTER	X	1				1+5	1+3+4+9			5	1
PIPEFITTER	X	1				1+5	1+3+4+9			5+6 +11	1
PROCESS CRANE OPERATOR	X	1				1+5	1+3+9			8	1
RADIOLOGICAL CONTROL TECHNICIAN	X	1				2+5	1+3+4+9				1
RIGGER	X	1				1+5	1+3+4+9		4	7	1
SIGN PAINTER	X	1				1+5	1+3+9			5	1
TOOL CRIB ATTENDANT	X						3+9				1
TRUCK DRIVER	X	1				1+5	1+3+9	1	3	4	1
WELDER	X	1				1+5	1+3+4+9				1
MANAGEMENT PERSONNEL											
DIVISION DIRECTOR	X			1			3				1
MANAGERS/DEPUTY MANAGERS											
ENGINEERING (Facility)	X	1		2		1+6	1+2+3		1+6	1	1+3+6+7 +12
ENVIRONMENTAL ENGINEERING	X	X	X	2	1	1+6	1+2+3+9	2	1+6	1	1+3+4+6+7

Table 1. Training Matrix.

Job Position	RCRA (Table 2)					NON-RCRA (Table 3)					
	A	B	C	D	E	F	G	H	I	J	K
MAINTENANCE	X	1		2		1+6	1+2+3		1+6	1	1+3+6+10
OPERATIONAL READINESS REVIEW	X	1				1	1+2+3+9		1+2		1+3+6
OPERATIONS	X	1	X	2+3+4	1	1+6	1+2+3+9	2	1+2+4+6	1	1+2+3+6+7 +10+12
OPERATIONS SUPPORT & WORK CONTROL	X	1		2			1+2+3		1+6	1	1+3+6+10
OTHER (NON-FACILITY MGRS)	X						3		1		
PLANT MGR/DEPUTY MGR	X	1		1		1+6	1+2+3		1+6		1+3+6+12
RADIOLOGICAL CONTROL	X	1		2		1+3+5	2+3+9		1+2+6		1+3
TRAINING	X	1	X	2		1	1+2+3		1+6		1+2+3
TEAM LEADERS											
GENERATOR & WASTE SERVICES	X	X				1+6	2+3	2	1		1
MAINTENANCE	X	1					1+2+3+6		1+6	1	1+3+6+10
OPERATIONS	X	1	X	2+3+4	1	1+6	1+2+3+9	2	1+2+4+6	1	1+2+3+6+10
OPERATIONS SUPPORT	X	1					1+2+3+6		1+6		1+3+6+10
RADIOLOGICAL CONTROL	X	1		2		1+3+5	2+3+9		1+2+6		1+3
TRAINING	X	1	X	2		1	1+2+3		1+6		1+2+3
WORK CONTROL	X	1					1+2+3+6		1+6	1	1+3+6
SPECIAL: GROUPS/MEMBERS/COMMITTEES/ASSIGNMENTS											
ASBESTOS ABATEMENT MANAGEMENT PLANNER	X	1					3				9
BUILDING WARDEN	X					1+6	1+3				5
CORRECTIVE ACTION EVALUATION GROUP	X						3				6+7
CRITICALITY SAFETY REPRESENTATIVE	X	1				1+6+7	3				
MANAGER-ON-CALL	X	1		2+3							10
OCCURRENCE REPORT WRITER/INVESTIGATOR	X	1				1	3				7+10+11
PERSON-IN-CHARGE (PIC)	X	1				1+6	1+3+6+8+9		6	1+3	
PLANT REVIEW COMMITTEE	X						3				12
PROCEDURE WRITER	X	X					3		1+6		
SHIPPER	X	1	2	2	X	1+6	3	2+3			
UNREVIEWED SAFETY QUESTION EVALUATOR	X										12
OTHER PERSONNEL											
SWD VISITOR/VENDER	REFER TO PAGE 17 OF THIS APPENDIX FOR REQUIRED TRAINING										

Table 2. RCRA Required Training.

COURSE NUMBER	CATEGORY A GENERAL WORKER TRAINING	RETRAINING (months)
02006A	Hanford Site Orientation (HSO)	12 - 000001
The following are part of HSO: (Required for new employee only.) 000087 Initial Security Briefing (DOE Order 5631.1B & DOE Order 5631.2C) *02006B Hazardous Communication and Waste Orientation (Washington Administrative Code (WAC) 173-303 & 29 Code of Federal Regulation (CFR) 1910.1200)		
000001	Hanford General Employee Training (HGET)	12 - 000001
The following are part of HGET: 000100 "Escort Training" *02006B"Hazard Communications Orientation" (WAC 173-303) 000165 "Asbestos General Employee Training" 020108 "Non-radioactive Worker Safety Orientation" 003000 "Lock & Tag-General "020196" Noise Control Requalification" 020005 "Criticality Safety - Nonfissile Material Handler "120196" Computer Security Awareness" 02006F "Fire Extinguisher Safety Orientation "162236" QA Program Overview" * Denotes the RCRA portion of these courses.		
300700 SWM ONLY	Solid Waste Operations Facility Orientation	24 - 300700
301740 SWM ONLY	Solid Waste Management Hazard Communication The following are part of 301740:	12 - 301740
Facility Emergency and Hazard Information Checklist - courses, 03E044 - LLBG, 03E045 - 616, 03E046 - 224T, & 03E047 - CWC; buildings not included in this list will use the "Emergency Response Information Board."		
450700 T PLANT ONLY	Facility Orientation - T Plant	24 - 450700
03E048 T PLANT ONLY	Facility Emergency and Hazard Information Checklist - T Plant Complex Buildings not included will use the"Emergency Response Information Board"	12 - 03E048
306750 WRAP 1 ONLY	WRAP 1 Facility Orientation (including Haz. Comm. and BEP)	12 - 306750
	CATEGORY B GENERAL WORKER TRAINING	
	B-1	
031110	24-Hour RCRA TSD Hazardous Waste	12 - 032020
The following are part of course 031110: 020032 "Scott SKAPAK-MSA PAPR Requalification" (29 CFR 1910.34)(As required by training needs analysis) 02006G "Hazards Communication and Waste Management Awareness" (29 CFR 1910.1200, WAC 173-303)(ONE TIME ONLY) 020194 "Noise Control" (ONE TIME ONLY)		
032020	Hazardous Waste Refresher Training	12 - 032020
The following are part of course 032020: 020030 - SCBA Annual is given with this class if requested. (29 CFR 1910.134)(As required by training needs analysis) 020032 - Scott SKAPAK is given with this course if requested. (29 CFR 1910.134)(As required by training needs analysis)		
031310	Hazardous Waste Operations Mgr/Supervisor - 8 hr (For 24 hr or 40 hr Hazardous Waste Training - Operations managers/team leaders only)	N/A
020041	Basic Respiratory Protection (as required by training needs analysis.)	12 - 020041
020044	Quantitative Mask Fit (as required by training needs analysis.)	12 - 020044
	B-2	
301310	Solid Waste Facility Recordkeeping (Required for SWITS data entry personnel only)(and as required by needs analysis.)	N/A

Table 2. RCRA Required Training.

CATEGORY B GENERAL WORKER TRAINING (continued)		
B-3		
301315	Solid Waste Acceptance Requirements (As required by training needs analysis)	N/A
COURSE NUMBER	**CATEGORY C ADVANCED GENERAL WORKER TRAINING**	**RETRAINING (months)**
C-1		
300010 300020 300025 300030 300040 300050 300080 SWM ONLY	SW TRU Waste Retrieval OQ Central Waste Complex OQ Mixed Waste Land Disposal Facility OQ TRUSAF - Operator Qualification Low-Level Burial Grounds Facility Non-Radioactive Dangerous Waste Storage Facility OQ Solid Waste Verification Sampling *For operators only. Operators must qualify in the their assigned duties unless escorted by a qualified operator. Operators are not required to maintain all qualifications. SWO operations managers/team leaders will take course 300590, manager qualification. The training team leader, trainers, and training evaluator may take either applicable operator qualifications or course 300590.	24 - 3000XX
450010 450020 450030 450040 T PLANT ONLY	T Plant Canyon Decontamination OQ T Plant Surveillance OQ 2706-T Decon OQ Waste Handler OQ *Operators must qualify in the their assigned duties unless escorted by a qualified operator. Operators are not required to maintain all qualifications. T Plant operations managers/team leaders, training team leader, and trainers must take all operator qualifications.	24 - 4500XX
306500 306515 306520 306525 WRAP 1 ONLY	WRAP 1 Restricted Waste Management Glovebox Qualification WRAP 1 Shipping and Receiving Qualification WRAP 1 Control Room Qualification WRAP 1 Process Glovebox Qualification The above are for operators. Operations manager/operations team leaders/trainers take course 306510.	24 - 3065XX
C-2		
035100	Core Waste Management Training - Initial (For Operators, Operations Team leaders only)(WAC 173-303, 40 CFR, & 49 CFR)	12 - 035110
035110	Core Waste Management Training - Refresher	12 - 035110
450600 T PLANT ONLY	EP/APC - Operator (Operators only - Managers/Team Leaders will take course 450660, Cat. D-4)	12 - 450600
CATEGORY D GENERAL MANAGER TRAINING		
D-1		
035040	Environmental Regulations at Hanford	N/A
D-2		
035050	Environmental Compliance at Hanford (As required by training needs analysis)(may take 035040 as equivalent training)	N/A

Table 2. RCRA Required Training.

CATEGORY D GENERAL MANAGER TRAINING (continued)		
	D-3	
02028B	Building Emergency Director Training Required for Building Directors and operations managers/team leaders	12 - 037510
037510	BED/BW Requalification Training	12 - 037510
	D-4	
300060 SWM ONLY	Managers Oral Boards Qualification	N/A
306760 WRAP 1 ONLY	WRAP 1 Operations Manager/Team Lead Oral Boards	N/A
300590 SWM ONLY	SWO Managers Qualification	24 - 300590
306510 WRAP 1 ONLY	WRAP 1 Operations Manager/Operations Team Leader Qualification	24 - 306510
450660 T PLANT ONLY	EP/APC Manager	12 - 450660
****** T PLANT ONLY	T Plant Manager Oral Board	N/A
COURSE NUMBER	**CATEGORY E GENERAL SHIPPER**	**RETRAINING (months)**
NOTE: See Table 3, Category H for non-RCRA courses required for shipper certification. Personnel classified as General Workers, Advanced General Workers, or General Managers may also be required to take some or all of the following courses at the discretion of management.		
	E-1	
035020	Facility Waste Sampling & Analysis (As required by training needs analysis) (WAS-173-303, 40 CFR & 49 CFR)	N/A
035010 If course 035012 is taken, this requirement is met.	Waste Designation Support (WAC 173-303) (For information only, does not allow participant to sign manifest.)	N/A
	E-2	
020159	Dept. of Transportation Hazardous Waste Shipment Certification (Required for those who sign manifests) (Must have taken course 020064 first.) FOR HAZARDOUS WASTE SHIPPERS. (49 CFR 172)	24 - 020159
035012 Certification Test only.	Waste Designation	12 - 035012
035120 (For employees who sign manifest).	Waste Management Administrative - Initial	12 - 035130
035130	Waste Management - Administrative - Refresher	12 - 035130

Table 3. Non-RCRA Required Training.

COURSE NUMBER	CATEGORY F RADIATION WORKER TRAINING	RETRAINING (months)
	F-1 10 CFR Part 835.902 Radiological Workers	
020001	Radiological Worker II Training - Initial (As required by training needs analysis)	24 - 020003
020003	Radiological Worker II Retraining Requalification	24 - 020003
020702	Rad Worker I/II Refresher	24 - 020702
This course is taken the off year of 020003		
020900	ALARA For Technical Support Personnel (For facility technical support staff only and as required by training needs analysis)	N/A
300745	Personal Self-Survey - Solid Waste (Completion of 034520 and 024530 satisfy requirement for 300745)(Required for all SWM operators and operations team leaders only)	24 - 300745
450850	Personal Self-Survey - T-Plant (Completion of 034520 and 024530 satisfy requirement for 450850)(Required for all T-Plant operators and operations team leaders only)	24 - 450850
	F-2 10 CFR Part 835.903 Radiological Control Technicians	
022004	RCT Academic Training Program	24 - 022002
022002	RCT Recertification Program	24 - 022002
022120	RCT Continuing Training Cycle #1	Continuous
022122	RCT Continuing Training Cycle #2	Continuous
022124	RCT Continuing Training Cycle #3	Continuous
022126	RCT Continuing Training Cycle #4	Continuous
This training is continuous; once the employee finishes this course, the employee repeats the cycle. NOTE: Technician-specific training is conducted in accordance with the applicable requirements, and ESQ/HSF monitors certification.		
023105 SWM ONLY	SWO Facility OJT - RCT	24 - 023105
451500 T PLANT ONLY	RCT OJT T-Plant	24 - 451500
306770 WRAP 1 ONLY	WRAP 1 Facility OJT - RCT	24 - 306770
	F-3 (RCT Level 4 managers & team leaders only)	
023001	1st Line Manager Oral Boards	N/A
024000	1st Line Manager Fundamentals	N/A
	F-4 DOE 5480.24	
020010	Criticality Safety Training - Fissionable Material Handlers	24 - 020110
020110	Criticality Safety - Fissionable Material Handlers Retraining	24 - 020110
020301	Criticality Safety Job Safety Orientation - Fissile (JSO)	24 - 020301

Table 3. Non-RCRA Required Training.

COURSE NUMBER	CATEGORY F RADIATION WORKER TRAINING (continued)	RETRAINING (months)
	F-5	
020020 T PLANT ONLY	Criticality Safety Training - For Support Personnel	12 - 020020
	F-6	
020012	Criticality Safety Training Managers & Engineers (As required by training needs analysis)	24 - 020013
020013	Criticality Safety Manager/Engineer Retraining	24 - 020013
020302	Criticality Safety Job Specific Orientation-Manager/Engineer (JSO)	24 - 020302
	F-7	
******	Board Certification - Criticality Safety Representative	24 - ******
	CATEGORY G 29 CFR (OSHA) & WAC 296-65 (WISHA) TRAINING	
	G-1	
003035 SWM AND WRAP 1 ONLY	Lock & Tag - Authorized Worker(As required by training needs analysis)(29 CFR 1910.147)(For WRAP 1 003035 or 450800 meet this requirement.)	12 - 003036
003036 SWM AND WRAP 1 ONLY	Lock & Tag Refresher (29 CFR 1910.147)	12 - 003036
450800 T PLANT ONLY	Lock and Tag T Plant (29 CFR 1910.147)(As required by training needs analysis)	12 - 450800
	G-2	
004005	Managers' Safety Training	12 - 004005
	G-3	
020107	Behavior Based Safety Training (Fed Reg Vol 54 No. 16	N/A
	G-4	
02006L	Asbestos Control (29 CFR 1910.1001) (As required by training needs analysis)	12 - 02006L
(Qualifies support personnel to enter an Asbestos-Regulated Area for support purposes only. Not needed if the 170055 or 170060 course has been taken)		
	G-5	
170055	QTRC - Certified Asbestos Worker (WAC 296-65) (As required by training needs analysis)	12 - 170057
170057 INSULATOR ONLY	QTRC - Certified Asbestos Worker Requalification (WAC 296-65)	12 - 170057
	G-6	
170060	Asbestos Supervisor - QTRC (Cert)	12 - 170062
170062	Asbestos Requal - QTRC (As required by training needs analysis)	12 - 170062
(Required for any manager, team leader, or PIC who supervises any support personnel who enter an Asbestos-Regulated Area) (WAC 296-65)		

Table 3. Non-RCRA Required Training.

COURSE NUMBER	CATEGORY G 29 CFR (OSHA) & WAC 296-65 (WISHA) TRAINING (continued)	RETRAINING (months)
	G-7 (TRU Retrieval Program Only)	
031220	40-Hour Hazardous Waste Operations Training (For waste remediation sites; ie. the TRU Retrieval program. Training is required according to job assignment).	12 - 032020 (See Cat. B)
031230	16-Hour Hazardous Waste Operations Upgrade Training (Upgrade from 24 hour to 40 hour training) (As required)	N/A
031410	1-Day Waste Site Field Experience (course taken addition to 24-hour RCRA TSD Hazardous Waste, course 031110, if working on a non-TSD project)	
031420	3-Day Waste Site Field Experience (For anyone who takes the 40-Hour training and who goes into an waste site area unescorted.)	N/A
	G-8	
044480	Medium Risk Electrical Safety (For instrument specialists. Dependent on job assignment, may be required to take course 043870 instead.)	36 - 044480
043870	High Risk Electrical Safety (Required for electricians and electrical team leaders/managers.)	36 - 043875
	G-9	
020130	Confined Space Entry (As required by training needs analysis)(29 CFR 1910.146)	24 - 020130
020140	Fall Protection & Retrieval Devices (For anyone who uses fall protection equipment and as required by training needs analysis. A HEHF medical clearance is required for entry to this course.)(29 CFR 1910.66)	N/A
170500	Medic First Aid (As required by training needs analysis)(29 CFR 1910.120)	24 - 170500
170648	Bloodborne Pathogens - SPT (29 CFR 1910.1030) (Required for RCTs only)	12 - 170651
170651	Bloodborne Pathogens Update (29 CFR 1910.1030)	12 - 170651
170656	QTRC - Hands on Fire Extinguisher Training (29 CFR 1910.157) (As required by training needs analysis.)	12 - 170656
	CATEGORY H 49 CFR (DOT) TRAINING	
	H-1	
020075	Hazardous Material General Awareness Training	24 - 020075
020076	Hazardous Material Driver's Training (Truck Drivers only)	24 - 020076
050410	Vehicle Inspection/Load Tie-Down Securement for Driver's Training (Truck Drivers only)	N/A
	H-2	
NOTE: (1) The following courses are the non-RCRA requirements for becoming a certified hazardous material shipper (also see Category E for RCRA requirements). Non-shipper personnel may be required to take some or all of the following courses as specified in their training needs analysis. (2) Retraining for the below listed courses is not required if courses specified in H-3 are completed.		
020059	Basic RAM Shipment Awareness - Module 3 (Must have taken course 020064 first) FOR RADIOACTIVE OR MIXED WASTE SHIPPERS.	24 - 020059
020064	Basic Dept of Trans Haz Mat Regs Awareness - Module 1 (Prerequisite for 020059, 020069, & 020159)	24 - 020064
020068	Basic Hazardous Material Training - Module 2	24 - 020068

Table 3. Non-RCRA Required Training.

COURSE NUMBER	CATEGORY H 49 CFR (DOT) TRAINING (continued)	RETRAINING (months)
	H-3	
020069	Radioactive material Shipment Certification - Advanced Module 3 (Required for those who sign RSRs)	24 - 020069
020159	Hazardous Waste Shipper Certification - Advanced Module 2 (Required for those who sign HMSRs)	24 - 020159
	CATEGORY I OPERATIONS TRAINING	
	I-1	
080820	Safe/Drug-Free Workplace (Managers only)	24 - 080820
080910	Equal Employment Opportunity (Managers only)	N/A
080969 REQUIRED FOR NEW MANAGERS/TEAM LEADERS HIRED AFTER 07/93.	New Manager Orientation/EEO 2000 (Managers only)	N/A
****** SWM Only	Support Manager/Tech Staff Checklist (As required by training needs analysis.)(Not required for operations Managers/Team Leaders)	N/A
451420 T Plant only	Manager/Tech Staff Checklist	12 - 451420
306700 WRAP 1 only	WRAP 1 Technical Staff Training	12 - 306700
	I-2	
081050	Managing People, The Art of Leadership	N/A
061950	Manager Fundamentals Training	N/A
	I-3	
044470	Fork Truck Operator Training (As required by training needs analysis)	36 - 041890
041890	Fork Truck Operator Requalification	36 - 041890
	I-4	
040784	Basic Crane & Rigging (As required by training needs analysis)	36 - 040788
040788	Basic Crane & Rigging Requalification	36 - 040788
	I-5	
065911	NPO Mathematics	N/A
065912	NPO Chemistry	N/A
065914	NPO Electrical Theory	N/A
065915	NPO Instrumentation	N/A
065917	NPO Mechanical Fundamentals	N/A
	I-6	
451410 T PLANT ONLY	T Plant Operational Safety Requirements	N/A

Table 3. Non-RCRA Required Training.

COURSE NUMBER	CATEGORY J MAINTENANCE TRAINING	RETRAINING (months)
	J-1	
301730 SWM AND WRAP 1 ONLY	Solid Waste Job-Specific JCS (For WRAP 1, 301730 or 450500 satisfy this requirement).	N/A
	Required for Solid Waste employees working in operations, engineering, or work control areas directly in support of a facility. (May have taken course 010108 in place of this course)	
450500 T PLANT ONLY	T Plant Work Control/JCS	N/A
	Required for T Plant employees working in operations, engineering, or work control areas directly in support of a facility. (May have taken course 010108 in place of this course)	
	J-2	
035065	PCB Awareness (Required for electricians only) (40 CFR 761)	N/A
459001	Maintenance Training System Overview (As required by training needs analysis)	N/A
452202	T Plant Circuit Breakers (As required by training needs analysis)	N/A
452210	T Plant Hoists and Cranes (Electrical) (As required by training needs analysis)	N/A
452217	Maintenance of 2706-T Ventilation and Exhaust Equipment (As required by training needs analysis)	N/A
452225	Maintenance of 271-T Air Supply Fan (As required by training needs analysis)	N/A
	J-3	
300550	PIC Training--for Solid Waste employees	N/A
450550	PIC Training--for T Plant employees	N/A
306550	WRAP 1 PIC Training--for WRAP 1 employees	N/A
	J-4	
020089	Defensive Driving Course	24 - 020089
042730	Flagging and Traffic Control	36 - 042730
043220	Load Securing for Transport	36 - 043220
	J-5	
042720	Aerial Lifts (As required by training needs analysis)	36 - 043920
043920	Aerial Lifts Operator Requalification	36 - 043920
	J-6	
042590	Pressure Relief Valves	24 - 042590
459001	Maintenance Training System Overview (As required by training needs analysis)	N/A
	J-7	
042820	Wire Rope/Rigging Hardware Inspection	36 - 042822
	J-8	
042830	Overhead Crane Mechanical	36 - 042830

Table 3. Non-RCRA Required Training.

COURSE NUMBER	CATEGORY J MAINTENANCE TRAINING (continued)	RETRAINING (months)
	J-9	
459001	Maintenance Training System Overview - Instrument (As required by training needs analysis)	N/A
451800	Radiation Detection Fundamentals (As required by training needs analysis)	N/A
451801	Eberline Alpha Continuous Air Monitor (As required by training needs analysis)	N/A
451802	Eberline models AMS-3 and AMS-3A beta air monitor (As required by training needs analysis)	N/A
451803	Eberline PCM-1B portal monitors (As required by training needs analysis)	N/A
451804	Eberline PM-6A portal monitors (As required by training needs analysis)	N/A
451805	Eberline RMS-II Radiation Monitor (As required by training needs analysis)	N/A
451808	Honeywell UDC 5000 Differential Temperature Controller (As required by training needs analysis)	N/A
451810	Kurz Flow Controller (As required by training needs analysis)	N/A
451816	Chino Programmable Recorder (As required by training needs analysis)	N/A
451819	Kent 100 Programmable Recorder (As required by training needs analysis)	N/A
306535	EG&G Alpha/Beta Stack (As required by training needs analysis)	24 - 306535
042370	Eberline Beta Cam (As required by training needs analysis)	24 - 042370
042670	Eberline PCM-1B (As required by training needs analysis)	24 - 042670
	J-10	
459001	Maintenance Training System Overview - Millwright (As required by training needs analysis)	N/A
452101	Pump Theory and Maintenance (As required by training needs analysis)	N/A
	J-11	
306545	WRAP 1 Hydraulic Safety (As required by training needs analysis)	24 - 306545
COURSE NUMBER	CATEGORY K OTHER EMPLOYEE TRAINING	RETRAINING (months)
	K-1	
000079	Comprehensive Security Briefing Required for badge levels 2 or 3	12 - 000080
000080	Security Refresher Briefing Required for badge levels 2 or 3	12 - 000080
305100	Solid Waste Disposal Operations Administration Conduct of Operations (Facility personnel only)	N/A

Table 3. Non-RCRA Required Training.

COURSE NUMBER	CATEGORY K OTHER EMPLOYEE TRAINING (continued)	RETRAINING (months)
	K-2	
000390	On-the-Job Training Workshop (As required by training needs analysis)	N/A
000397	On-the-Job Evaluator Trainer (As required by training needs analysis)	N/A
	K-3	
001000	Manager Conduct of Operations (DOE Order 5480.19) May have taken course number 001002 in place of this class	N/A
	K-4	
02006J	EPCRA 312 REPORTING REQUIREMENTS (Previously called SARA) (40 CFR 370)	12 - 02006J
02006K	EPCRA 313 TOXIC CHEMICAL RELEASE REPORTING (Previously called SARA) (40 CFR 372)	12 - 02006K
	K-5	
037500	Building Warden Training	12 - 037510
	K-6	
170002	QTRC - Risk Evaluation	N/A
	K-7	
170015	Root Cause Basics	N/A
170026*	Root Cause Techniques Workshop (As required by training needs analysis)(Required for employees who perform root cause analysis for PPG values ≥ 25. Optional for Corrective Action Evaluation Group)	N/A
170027*	Root Cause Mini-Mort Workshop (As required by training needs analysis)	N/A
	K-8	
170011	Train the Trainer (or equivalent level of training)	N/A
	K-9	
170600	AHERA Management Planner	12 - 170600
170610	AHERA Building Inspector Required for engineers who manage asbestos within SWD facilities (40 CFR Part 61, WAC 296-62-077)	12 - 170610
	K-10	
170640	Introduction to Occurrence Reporting (DOE Order 5000.3B)	N/A
	K-11	
170642	Occurrence Report Writing (DOE Order 5000.3B)	N/A
	K-12	
300970	SWD USQ Evaluator (DOE Order 5480.21) (As required by training needs analysis)	24 - 300970

COURSE NUMBER	SWD VISITOR OR VENDOR	RETRAINING (months)
Print Name _____		Date _____
	RADIATION TRAINING	
• 020001	Radiation Worker Training - Initial In accordance with: 10 CFR Part 835.902	24 - 020003
	RCRA TRAINING	
000090	Visitor/vendor Training	N/A
• 031110	24-Hour RCRA TSD Hazardous Waste In accordance with: 29 CFR 1910.120	12 - 032020
	FACILITY ORIENTATION	
300700 SWM ONLY	Solid Waste Operations Facility Orientation	24 - 300700
450700 T PLANT ONLY	Facility Orientation - T Plant	24 - 450700
306750 WRAP 1 ONLY	WRAP 1 Facility Orientation (including Haz. Comm. and BEP)	12 - 306750

• As required by Job

Job Description:

All hazardous waste and radiation worker training has been met or equivalent classes have been taken, if working in facility area containing radioactive or hazardous materials. Facility orientation will be taken unless escorted by an employee certified in this area.

Visitor or Vender Signature _____

NOTE: This data needs to be turned into Facility Operations Manager before initiating work.

Operations Manager _____

ECO (T Plant only) _____

NOTE: Craft-specific training is conducted in accordance with the applicable requirements of parent company. However, crane operators must be certified to the requirements of the Hanford Hoisting and Rigging Manual and have evidence of their certification.

APPENDIX 11A

RANDOM NUMBERS TABLE

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Table APP 11A-1. Random Numbers Table.* (sheet 1 of 2)

Location	X (1,13)	Y (1,11)
East loading pad	5	2
	4	8
	1	4
	3	5
	8	10
	5	6
	13	4
	7	3
	10	1
Location	**X (1,9)**	**Y (1,13)**
North loading pad	4	8
	2	12
	7	1
	1	11
	5	5
	3	5
	1	10
	8	7
	5	13

*Random numbers generated on Lotus 123. Lotus 123 is a Registered Trademark of the Lotus Development Corporation.

Table APP 11A-1. Random Numbers Table.* (sheet 2 of 2)

Location	X	Y
Packaging, sampling, and receiving area sumps and trenches		
Packaging materials handling equipment area sump	2	2
Packaging/sampling room sump	3	2
Receiving area trench	1	18
Cell trenches		
Caustic cell	1	2
Oxidizer cell	1	13
Combustible cell	1	16
Acid cell	1	3
Flammable 1A cell	1	14
Flammable 1B Cell	1	9
Walkway trenches		
Caustic/oxidizer	1	5
Combustible/acid	1	15
Flammable 1B/1A	1	9
Loading pad trenches		
East pad trench	1	25
North pad trench	1	16

*Random numbers generated on Lotus 123. Lotus 123 is a Registered Trademark of the Lotus Development Corporation.

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APPENDIX 11B

Refer to Attachment 10 of Hanford Facility RCRA Permit (Ecology 1994).

The specific sections of Attachment 10 which are incorporated into the Permit are listed as follows by procedure. No part of Attachment 10 shall supersede any part of Attachment 8.

Number	Procedure	Pages	Sections
11B-1	Preparing Health and Safety Plan	1-4	1.0, 2.0, 3.0, 4.2, 5.0, 5.1, 5.2, 6.0, 6.1, 6.2
11B-2	Decontaminating Sampling Equipment	23-24	1.0, 2.0, 3.0, 5.2, 5.3, 6.1, 6.2, 6.3
11B-3	Evaluating Data	25-26, 28-29	1.0, 2.0, 3.0, 4.7, 5.0
11B-4	Packaging Samples	32-35	1.0, 4.0, 4.1, 5.0, 5.1, 5.2
11B-5	Soil and Sediment Sample Containers	6-11	1.0, 3.0, 4.2, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8
11B-6	Ensuring Quality Control of Records and Documentation	70-77	1.0, 3.0, 4.0, 4.1, 4.2, 4.3, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 6.0, 6.2, 6.3, 6.4, 6.5, 6.6
11B-7	Maintaining a Field Logbook	44-48	1.0, 3.0, 5.0, 5.1, 5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, 6.0, 6.1, 6.2, 7.0
11B-8	Chain-of-Custody	39-43	1.0, 3.0, 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 5.0, 6.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.7
11B-9	Controlling Unknown Suspected Waste	49-59	1.0, 3.0, 4.1, 4.2, 4.3, 4.4, 4.5, 5.0, 5.1, 5.2, 6.0, 6.1, 6.2, 6.3, 6.4, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11
11B-10	Deviating from Procedures Used During Closure	60-64	1.0, 2.0, 4.0, 4.2, 5.0, 5.1, 5.2, 5.2.1, 5.2.2, 5.3

APPENDIX 11B

DESCRIPTION OF PROCEDURES